



Science and Technology Directorate Publications and Presentations, January 1–December 31, 2004

*Compiled by
F.G. Summers*

Marshall Space Flight Center, Marshall Space Flight Center, Alabama

The NASA STI Program Office...in Profile

Since its founding, NASA has been dedicated to the advancement of aeronautics and space science. The NASA Scientific and Technical Information (STI) Program Office plays a key part in helping NASA maintain this important role.

The NASA STI Program Office is operated by Langley Research Center, the lead center for NASA's scientific and technical information. The NASA STI Program Office provides access to the NASA STI Database, the largest collection of aeronautical and space science STI in the world. The Program Office is also NASA's institutional mechanism for disseminating the results of its research and development activities. These results are published by NASA in the NASA STI Report Series, which includes the following report types:

- **TECHNICAL PUBLICATION.** Reports of completed research or a major significant phase of research that present the results of NASA programs and include extensive data or theoretical analysis. Includes compilations of significant scientific and technical data and information deemed to be of continuing reference value. NASA's counterpart of peer-reviewed formal professional papers but has less stringent limitations on manuscript length and extent of graphic presentations.
- **TECHNICAL MEMORANDUM.** Scientific and technical findings that are preliminary or of specialized interest, e.g., quick release reports, working papers, and bibliographies that contain minimal annotation. Does not contain extensive analysis.
- **CONTRACTOR REPORT.** Scientific and technical findings by NASA-sponsored contractors and grantees.

- **CONFERENCE PUBLICATION.** Collected papers from scientific and technical conferences, symposia, seminars, or other meetings sponsored or cosponsored by NASA.
- **SPECIAL PUBLICATION.** Scientific, technical, or historical information from NASA programs, projects, and mission, often concerned with subjects having substantial public interest.
- **TECHNICAL TRANSLATION.** English-language translations of foreign scientific and technical material pertinent to NASA's mission.

Specialized services that complement the STI Program Office's diverse offerings include creating custom thesauri, building customized databases, organizing and publishing research results...even providing videos.

For more information about the NASA STI Program Office, see the following:

- Access the NASA STI Program Home Page at <http://www.sti.nasa.gov>
- E-mail your question via the Internet to help@sti.nasa.gov
- Fax your question to the NASA Access Help Desk at 301-621-0134
- Telephone the NASA Access Help Desk at 301-621-0390
- Write to:
NASA Access Help Desk
NASA Center for AeroSpace Information
7121 Standard Drive
Hanover, MD 21076-1320
301-621-0390



Science and Technology Directorate Publications and Presentations, January 1–December 31, 2004

*Compiled by
F.G. Summers*

Marshall Space Flight Center, Marshall Space Flight Center, Alabama

National Aeronautics and
Space Administration

Marshall Space Flight Center • MSFC, Alabama 35812

TRADEMARKS

Trade names and trademarks are used in this report for identification only. This usage does not constitute an official endorsement, either expressed or implied, by the National Aeronautics and Space Administration.

Available from:

NASA Center for AeroSpace Information
7121 Standard Drive
Hanover, MD 21076-1320
301-621-0390

National Technical Information Service
5285 Port Royal Road
Springfield, VA 22161
703-487-4650

TABLE OF CONTENTS

NASA REPORTS AND OTHER PUBLICATIONS	1
Technical Memorandums	1
Technical Publications	1
Conference Publications	1
OPEN LITERATURE	2
Refereed Journal Articles	2
Contributions to Books, Conference Proceedings, Etc.	10
Published Abstracts	18
PRESENTATIONS	21
SCIENCE AND TECHNOLOGY DIRECTORATE AUTHOR INDEX	35

TECHNICAL MEMORANDUM

SCIENCE AND TECHNOLOGY DIRECTORATE PUBLICATIONS AND PRESENTATIONS, JANUARY 1–DECEMBER 31, 2004

NASA REPORTS AND OTHER PUBLICATIONS

Technical Memorandums

1. The Geostationary Operational Environmental Satellite (GOES) Product Generation System, *NASA/TM—2004–213286*, June 2004. S.L. Haines, R.J. Suggs, and G.J. Jedlovec.
2. Science Directorate Publications and Presentations, January 1–December 31, 2003. *NASA/TM—2004–213394*, September 2004. Compiled by F.G. Summers.

Technical Publications

1. Application of the Maximum Amplitude-Early Rise Correlation to Cycle 23, *NASA/TP—2004–213281*, June 2004. R.M. Wilson and D.H. Hathaway.
2. Plasma Sail Concept Fundamentals. *NASA/TP—2004–213143*, April 2004. G.V. Khazanov, P. Delamere, K. Kabin, T.J. Linde, and E. Krivorutsky.

Conference Publications

1. The Deflection Plate Analyzer: A Technique for Space Plasma Measurements Under Highly Disturbed Conditions, Proceedings of 8th Spacecraft Charging Technology Conference, Huntsville, AL, October 20–24, 2003, *NASA/CP—2004–213091*, March 2004. K.H. Wright, K. Dutton, N.G. Martinez, D. Smith, and N.H. Stone.

OPEN LITERATURE

Refereed Journal Articles

1. Accelerated Electrons in the LLBL as Observed by Interball on February 15, 1996, *Planetary Space Science*, 53, 149–156, 2004. O.L. Vaisberg, L.A. Avakov, N. Smirnov, J.A. Sauvaud, and N.L. Borodkova.
2. Analysis Methods and Results for Weak Gamma-Ray Bursts in the BATSE Data, *Astrophysical J.*, 603, 624–643, March 10, 2004. I.G. Mitrofanov, D.S. Anfinov, M.S. Briggs, G.J. Fishman, R.M. Kippen, M.L. Litvak, C.A. Meegan, W.S. Paciesas, R.D. Preece, and A.B. Sanin.
3. Analysis of Radial Segregation in Directionally Solidified $\text{Hg}_{0.89}\text{Mn}_{0.11}\text{Te}$, *J. Cryst. Growth*, 273, 179–189, 2004. M.W. Price, R.N. Scripa, F.R. Szofran, S. Motakef, and B. Hanson.
4. Antiferromagnetic Interlayer Exchange Coupling in All-Semiconducting EuS/PbS/EuS Trilayers, *Phys. Reports B*, 69, ID 224410, June 2004. C.J. Smith, A.T. Filip, H.J. Swagten, B. Koopmans, W.J. de Jonge, M. Chernyshova, L. Kowalczyk, K. Graszka, A. Szerbakow, T. Story, W. Palosz, and A.Y. Sipatov.
5. An Application of the Phosphorus Consistent Rule for Environmentally Acceptable Cost-Efficient Management of Broiler Litter in Crop Production, *J. Environmental System*, 29(4), 311–339, 2004. K.P. Paudel, M. Adhikari, A.S. Limaye, and N. Martin.
6. Auroral Substorm Time Scales: Seasonal and IMF Variations, *J. Geophys. Res.*, 109(A3), 10.1029/2003JA009951, March 2004. D. Chua, G.K. Parks, M.J. Brittnacher, G.A. Germany, and J.F. Spann, Jr.
7. The Burst and Transient Source Experiment (BATSE) Earth Occultation Catalog of Low-Energy Gamma-Ray Sources, *Astrophys. J.*, 154, 585–622, September 20, 2004. B.A. Harmon, C.A. Wilson, G.J. Fishman, V. Connaughton, W. Henze, W.S. Paciesas, M.H. Finger, M.L. McCollough, M. Sahi, B. Peterson, C.R. Shrader, J.E. Grindlay, and D. Barret.
8. Chandra Observations of the X-Ray Environs of SN 1998bw/GRB 980425, *Astrophys. J.*, 608, 872–882, June 20, 2004. C. Kouveliotou, S.E. Woosley, S.K. Patel, A. Levan, R. Blandford, E. Ramirez-Ruiz, R.A.M.J. Wijers, M.C. Weisskopf, A.F. Tennant, E. Pian, and P. Giommi.
9. Chandra Phase-Resolved X-Ray Spectroscopy of the Crab Pulsar, *Astrophys. J.*, 601, 1050–1057, February 2004. M.C. Weisskopf, S.L. O’Dell, F. Paerels, R.F. Elsner, W. Becker, A.F. Tennant, and D.A. Swartz.
10. Changes in the X-Ray Emission From the Magnetar Candidate 1E 2259–586 During its 2002 Outburst, *Astrophys. J.*, 605, 378–399, April 10, 2004. P.M. Woods, V. Kaspi, C. Thompson, F. Gavril, H. Marshall, D. Chakrabarty, K. Flanagan, J. Heyl, and L. Hernquist.
11. Coherence Phenomena in Coupled Optical Resonators, *J. Modern Optics*, 51, 2503–2513, November 10, 2004. D.D. Smith and H. Chang.

Refereed Journal Articles (Continued)

12. Coupled-Resonator-Induced Transparency, *Phys. Rev. A.*, 69, ID 063804, DOI 10.1103/PhysRev.A.69.063804, June 2004. D.D. Smith, H. Chang, K.A. Fuller, A.T. Rosenberger, and R.W. Boyd.
13. Crystallization and Preliminary X-Ray Analysis of Der f 2, a Potent Allergen Derived From the House Dust Mite (*Dermatophagoides Farinae*). *Acta Cryst. D*, 59, 343–344, DOI 10.1107/S0907444903004438, 2003. D.F. Roeber, A. Achari, T. Takai, Y. Okumura, and D.L. Scott.
14. Crystallization and Preliminary X-Ray Analysis of Human Recombinant Acid β -Glucocere-brosidase, A Treatment for Gaucher's Disease. *Acta Crystallographica Section D*, 59, 343–344, February 2003. D.F. Roeber, A. Achari, P. Manvalan, T. Edmonds, and D.L. Scott.
15. Cusp and LLBL as Sources of the Isolated Dayside Auroral Feature During Northward IMF, *J. Geophys. Res.*, 109, A12222, DOI 10.1029/2004JA010619, 2004. S.-W. Chang, D.L. Gallagher, J.F. Spann, Jr., S.B. Mende, R.A. Greenwald, and P.T. Newell.
16. A Deep Near-Infrared Survey of the N49 Region Around the Soft Gamma-Ray Repeater 0526–66, *Astrophys. J. Lett.*, 2004. S. Klose, A.A. Henden, U. Geppert, J. Greiner, H.H. Guetter, D.H. Hartmann, C. Kouveliotou, C.B. Luginbuhl, B. Stecklum, and F.J. Vrba.
17. Deformation, Stress Relaxation, and Crystallization of Lithium Silicate Glass Fibers Below the Glass Transition Temperature, *J. Materials Sci.*, 39(21), 6539–6549, DOI 10.1023/B:JMSC.0000044893.27266.8b, November 1, 2004. S.T. Reis, C.S. Ray, R.K. Brow, and C.W. Kim.
18. Density Structures Inside the Plasmasphere: Cluster Observations, *Ann. Geophys.*, 22, 2577–2585, July 2004. F. Darrouzet, J.F. Lemaire, P.M. Décréau, J. DeKeyser, A. Masson, D.L. Gallagher, O. Santolik, J.G. Trotignon, J.L. Rauch, E. Le Guirriec, P. Canu, F. Sedgemore, and M. Andre.
19. Difference in Icosahedral Short-Range Order in Early and Late Transition Metal Liquids, *Phys. Rev. Lett.*, 93, 037802–1 through 037802–4, July 16, 2004. G.W. Lee, A.K. Gangopadhyay, K.F. Kelton, R.W. Hyers, T.J. Rathz, J.R. Rogers, and D.S. Robinson.
20. Differential Velocity Between Solar Wind Protons and Alpha Particles in Pressure Balance Structures, *J. Geophys. Res.*, 109, DOI 10.1029/2003JA010274, 2004. Y. Yamauchi, S.T. Suess, J.T. Steinberg, and T. Sakurai.
21. Diffraction and Imaging Study of Imperfections of Crystallized Lysozyme With Coherent X-Rays, *Acta Crystallographica D*, 60, *Biological Crystallography*, DOI 10.1107/S0907444904000915, 621–629, 2004. Z.W. Hu, Y.S. Chu, B. Lai, B.R. Thomas, and A.A. Chernov.
22. Doppler Radar and Lightning Network Observations of a Severe Outbreak of Tropical Cyclone Tornadoes, *Monthly Weather Rev.*, 132, 1747–1763, July 2004. E.W. McCaul, Jr., D.E. Buechler, S.J. Goodman, and M. Cammarata.
23. Economic Impact of Water Allocation on Agriculture in the Lower Chattahoochee River Basin, *J. Hydrological Sci. and Tech.*, 20(1–4), 75–85, 2004. A.S. Limaye, K.P. Paudel, F. Musleh, J.F. Cruise, and L.U. Hatch.
24. Effect of the Traveling Magnetic Field (TMF) on the Buoyancy-Induced Convection in the Vertical Bridgman Growth of Germanium (The), *J. Crys. Growth*, 263, 80–89, March 1, 2004. S. Yesilyurt, S. Motakef, R.N. Grugel, and K. Mazuruk.

Refereed Journal Articles (Continued)

25. Erratum: “Evidence That a Deep Meridional Flow Sets the Sunspot Cycle Period,” *Astrophys. J.*, 602, 543, February 10, 2004. D.H. Hathaway, D. Nandy, R.M. Wilson, and E.J. Reichmann.
26. Eruption of a Multiple-Turn Helical Magnetic Flux Tube in a Large Flare: Evidence for External and Internal Reconnection That Fits the Breakout Model of Solar Magnetic Eruptions, *Astrophys. J.*, 611, 545–556, August 10, 2004. G.A. Gary and R.L. Moore.
27. EUSO Mission (The), *Nucl. Phys. B. (Proc. Suppl.)*, 134, 15, September 2004. J.H. Adams.
28. Evaluating Corn (*Zea Mays* L.) N Variability Via Remote Sensed Data, *Communications in Soil Science and Plant Analysis*, 35, 2465–2483, 2004. D.G. Sullivan, J.N. Shaw, P.L. Mask, D.L. Rickman, J.C. Luvall, and J.M. Wersinger.
29. Evidence for Gradual External Reconnection Before Explosive Eruption of a Solar Filament, *Astrophys. J.*, 602, 1024–1036, January 1, 2004. A.C. Sterling and R.L. Moore.
30. Evidence for Hot Plasma After CME Events From Remote and In Situ Observations, *Astrophys. J. Lett.*, 613, L173–L176, October 2004. G. Poletto, S.T. Suess, A. Bemporad, N. Schwadron, H.A. Elliott, T. Zurbuchen, and Y. Ko.
31. Examination of the Atomic Pair Distribution Function (PDF) of SiC Nanocrystals by In-Situ High Pressure Diffraction, *J. Alloys and Compounds*, 382, 133, January 2004. E. Grzanka, S. Stel'makh, S. Gierlotka, Y. Zhao, B. Palosz, and W. Palosz.
32. External and Internal Reconnection in Two Filament-Carrying Magnetic-Cavity Solar Eruptions, *Astrophys. J.*, 613, 1221–1232, October 1, 2004. A.C. Sterling and R.L. Moore.
33. Ferroelectric Field Effect Transistor Model Using Partitioned Ferroelectric Layer and Partial Polarization, *J. Integrated Ferroelectrics*, 64, 89–100, December 2004. T.C. MacLeod and F.D. Ho.
34. Field Scale Mapping of Surface Soil Clay Concentration. *International J. of Precision Agriculture*, 5, 7–26, 2004. F. Chen, D.E. Kissel, L.T. West, R. Clark, D.L. Rickman, and J.C. Luvall.
35. First Observation of Jupiter by XMM-Newton, *Astron. & Astrophys. J.*, 424, 331–337, September 2004. G. Branduardi-Raymont, R.F. Elsner, G.R. Gladstone, G. Ramsay, P. Rodriguez, R. Soria, and J.H. Waite, Jr.
36. First Results of Digital Topography Applied to Macromolecular Crystals, *J. Applied Crystallography*, 37, 481–485, 2004. J. Lovelace, A.S. Soares, H. Bellamy, R.M. Sweet, E.H. Snell, and G. Borgstahl.
37. Flow in Streamer Boundaries and Streamer Stability, *Advances in Space Research*, 33, 668–675, 2004. S.T. Suess and S. Nerney.
38. Fluctuations, Stratification and Stability in a Liquid Fluidized Bed at Low Reynolds Number, *J. Physics*, 16, S4219–S4230, September 2004. P.N. Segre and J.P. McClymer.

Refereed Journal Articles (Continued)

39. Function of Several Critical Amino Acids in Human Pyruvate Dehydrogenase Revealed by its Structure, *Archives of Biochemistry and Biophysics*, 429(2), 171–179, 2004. L.G. Korotchkina, E.M. Ciszak, and M.S. Patel.
40. FUSE Observations of Galactic and Intrinsic Absorption in the Spectrum of the Seyfert 1 Galaxy 2MASX J21362313–6224008, *Astrophys. J. Lett.*, 609, 597–602, July 10, 2004. M. Bonamente and W. Van Dyke Dixon.
41. High Pressure X-Ray Diffraction Studies on Nanocrystalline Materials, *J. of Physics. Condensed Matter*, 16, S353–S377, February 2004. B. Palosz, S. Stel'makh, E. Grzanka, S. Gierlotka, R. Pielaszek, U. Bismayer, S. Werner, and W. Palosz.
42. Host of GRB 030323 at $z=3.372$: A Very High Column Density DLA System With a Low Metallicity (The), *Astron. & Astrophys.*, 419, 927–940, 2004. P.M. Vreeswijk, S.L. Ellison, C. Ledoux, R.A.M.J. Wijers, J.P.U. Fynbo, P. Moeller, A.A. Henden, J. Hjorth, G. Masi, E. Rol, and C. Kouveliotou.
43. IMAGE EUV Observation of a Radially, Bifurcated Plasmaspheric Features: First Observations of a Possible Standing ULF Waveform in the Inner Magnetosphere, *J. Geophys. Res.—Space Phys.*, 109(A1), A01203, 10.1029/2003JA009974, January 6, 2004. M.L. Adrian, D.L. Gallagher, and L.A. Avannov.
44. Imaging Modulated Reflections From a Semi-Crystalline State of Profilin:Actin Crystals, *J. Appl. Crystallography*, 37, 331–334, March 2004. J. Lovelace, K. Narayan, J. Chick, H. Bellamy, E. H. Snell, U. Lindberg, C. Schutt, and G. Borgstahl.
45. Interaction of Porosity With a Planar Solid/Liquid Interface, *Metallurgical and Materials Transactions A*, 35A, 1525–1538, May 2004. A.V. Catalina, D.M. Stefanescu, S. Sen, and W. Kaukler.
46. Ion Velocity Distributions Within LLBL and Their Possible Implication to Multiple Reconnections, *Annales Geophysicae*, 22(1), 213–236, 2004. O.L. Vaisberg, L.A. Avannov, T.E. Moore, and V.N. Smirnov.
47. Kinetic Roughening and Energetics of Tetragonal Lysozyme Crystal Growth, *Crystal Growth and Design*, 4, 691–699, 2004. S. Gorti, E. Forsythe, and M.L. Pusey.
48. Laboratory Experiments on Rotation and Alignment of the Analogs of Interstellar Dust Grains by Radiation, *Astrophys. J.*, 614, 781–795, October 20, 2004. M.M. Abbas, P.D. Craven, J.F. Spann, Jr., D. Tankosic, A. LeClair, D.L. Gallagher, E.A. West, J. Weingartner, W.K. Witherow, and A.G.G.M. Tielens.
49. Landcover Based Optimal Deconvolution of PALS L-Band Microwave Brightness Temperatures, *Remote Sensing of Environment*, 92, 497–506, 2004. A.S. Limaye, W.L. Crosson, C.A. Laymon, and E.G. Njoku.
50. Life in the Fast Lane for Protein Crystallization and X-Ray Crystallography, *Progress in Biophysics and Molecular Biology*, 88, 359–386, 2004. M.L. Pusey, Z.-J. Liu, W. Tempei, J. Praissman, D. Lin, B.-C. Wang, J.A. Gavira, and J.D. Ng.

Refereed Journal Articles (Continued)

51. Long-Term Spectral and Timing Behavior of Black Hole Candidate XTE J1908–094, *Astrophys. J.*, 609, 977–987, July 10, 2004. E. Gogus, M.H. Finger, C. Kouveliotou, P.M. Woods, S.K. Patel, M. Rupen, J.H. Swank, C.B. Markwardt, and M. Van Der Klis.
52. Lorentz Body Force Induced by Traveling Magnetic Fields, *J. Magnetohydrodynamics*, 40(2), 117–126, 2004. M.P. Volz and K. Mazuruk.
53. Magnetic Structure of H-Alpha Macrospicules in Solar Coronal Holes (The), *Astrophys. J.*, 605, 511–520, April 10, 2004. Y. Yamauchi, R.L. Moore, S.T. Suess, H. Wang, and T. Sakurai.
54. Magnetospheric Convection Electric Field Dynamics and Stormtime Particle Energization: Case Study of the Magnetic Storm of May 4, 1998, *Anuales Geophysical (France)*, 22(2), 497–510, February 2004. G.V. Khazanov, M.W. Liemohn, T.S. Newman, M.-C. Fok, and A.J. Ridley.
55. Mapping Soil pH Buffering Capacity of Selected Fields in the Coastal Plain, *Soil Sci. Soc. of America J.*, 68, 662–668, 2004. A.R. Weaver, D.E. Kissel, F. Chen, L.T. West, W. Adkins, D.L. Rickman, and J.C. Luvall.
56. Markov Chain Monte Carlo Joint Analysis of Chandra X-Ray Imaging Spectroscopy and Sunyaev-Zeldovich Effect Data, *Astrophys. J.*, 614, 56–63, October 10, 2004. M. Bonamente, M.K. Joy, J.E. Carlstrom, and S.J. LaRoque.
57. Maximum Likelihood Estimation of Spectra Information from Multiple Independent Astrophysics Data Sets, *Nucl. Instr. & Methods in Phys. Res. A*, 5211, 2004. L.W. Howell.
58. A Multiwavelength Search for a Counterpart of the Brightest Unidentified Gamma-Ray Source 3EG J2020+4017 (2CG078+2), *Astrophys. J.*, 615, 897–907, November 10, (2004). W. Becker, M.C. Weisskopf, Z. Arzoumanian, D. Lorimer, F. Camilo, R.F. Elsner, G. Kanbach, O. Reimer, D.A. Swartz, A.F. Tennant, and S.L. O'Dell.
59. Nitrogen Isotopic Ratio in Jupiter's Atmosphere From Observations by Composite Infrared Spectrometer (CIRS) on the Cassini Spacecraft, *Astrophys. J.*, 602(2), 1063–1074, February 20, 2004. M.M. Abbas, A. LeClair, T. Owen, B.J. Conrath, F.M. Flasar, V.G. Kunde, C.A. Nixon, R.K. Achterberg, G. Bjoraker, D.J. Jennings, G. Orton, and P.N. Romani.
60. Nonlinear Coupling of Electromagnetic Ion Cyclotron and Lower Hybrid Waves in the Ring Current Region: The Magnetic Storm of May 7, 1998 (The), *Nonlinear Processes in Geophysics*, 11(2), 229–239, February 2004. G.V. Khazanov, E.N. Krivorutsky, K.V. Gamayunov, and L.A. Avanov.
61. Nonlinear Drift-Kinetic Equation in the Presence of a Circularly Polarized Wave, *J. of Planetary and Space Science*, 52, 945–951, August 2004. G.V. Khazanov and E.N. Krivorutsky.
62. Non-Thermal Hard X-Ray Emission in Galaxy Clusters Observed With the BeppoSAX PDS, *Astrophys. J.*, 608, 166–178, June 10, 2004. J. Nevalainen, T. Oosterbroek, M. Bonamente, and S. Colafrancesco.
63. North Alabama Lightning Mapping Array (LMA): VHF Source Retrieval Algorithm and Error Analyses, *J. Atmospheric and Oceanic Technology (JTECH)*, 21, 543–558, April 2004. W.J. Koshak, R.J. Solakiewicz, R.J. Blakeslee, S.J. Goodman, H.J. Christian, J. Hall, J. Bailey,

Refereed Journal Articles (Continued)

- E.P. Krider, M.G. Bateman, D.J. Boccippio, D. Mach, E.W. McCaul, Jr., M.F. Stewart, D.E. Buechler, W.A. Petersen, and D. Cecil.
64. Notes on Interface Growth Kinetics 50 Years After Burton, Cabrera, and Frank. *J. Crys. Growth*, 264, 499–518, 2004. A.A. Chernov.
65. A Novel Metal-Ferroelectric-Semiconductor Field-Effect Transistor Memory Cell Design, *J. Integrated Ferroelectrics*, 2004. T.A. Phillips, F.D. Ho, and M. Bailey.
66. Numerical Simulation of Waves Driven by Plasma Currents Generated by Low-Frequency Alfvén Waves in a Multi-Ion Plasma, *J. Geophys. Res.*, 109, 10.1029/2003JA010251, 2004. N. Singh and G.V. Khazanov.
67. The O⁺ Density Trough at 5000 km Altitude in the Polar Cap, *J. Geophys. Res.*, 109, DOI 10.1029/2003JA010210, 2004. W. Zeng, J.L. Horwitz, P.D. Craven, F.J. Rich, and T.E. Moore.
68. Observed Helicity of Active Region Magnetic Fields in Solar Cycle 21, *Solar Physics*, 2003. M.J. Hagyard, A.A. Pevtsov, R.C. Canfield, Z. Blehm, and J.E. Smith.
69. On the Nature of the Bright Short-Period X-Ray Source in the Circinus Galaxy Field, *Astrophys. J.*, 605, 360–367, April 10, 2004. M.C. Weisskopf, K. Wu, A.F. Tennant, D.A. Swartz, and K.K. Ghosh.
70. Overview of the Convection and Moisture Experiment (CAMEX), *J. Atmos. Sci.*, 2004. R. Kakar, H.M. Goodman, R.E. Hood, and A.R. Guillory.
71. The Peculiar X-Ray Transient IGR 16358–4726, *Astrophys. J. Lett.*, 602L, L45–L48, February 2004. S.K. Patel, C. Kouveliotou, A.F. Tennant, P.M. Woods, A. King, P. Ubertini, C. Winkler, T. Courvoisier, M. Van Der Klis, and S. Wach.
72. Photoabsorption Study of Bacillus Megaterium, DNA and Related Biological Materials in the Phosphorous K-Edge Region, *Radiation Research*, 162, 464–468, 2004. S.P. Frigo, I. McNulty, R.C. Richmond, and C.F. Ehret.
73. Plasmaspheric Mass Loss and Refilling as a Result of a Magnetic Storm, *J. Geophys. Res.*, 109(A1), A01202, 10.1029/2003JA009948, January 2004. B.W. Reinisch, X. Huang, P. Song, J.L. Green, S.F. Fung, V.M. Vasyliunas, D.L. Gallagher, and B.R. Sandel.
74. The Precise Localization of the Soft Gamma Repeater SGR 1627–41 and the Anomalous X-Ray Pulsar AXP 1E1841–045 With Chandra, *Astrophys. J.*, 615, 887–896, November 10, 2004. S. Wachter, S.K. Patel, C. Kouveliotou, P. Bouchet, F. Ozel, A.F. Tennant, P.M. Woods, K. Hurley, W. Becker, and P. Slane.
75. Probing a GRB Progenitor at a Redshift of $z=2$: A Comprehensive Observing Campaign of the Afterglow of GRB 030226, *Astronomical J.*, 128, 1942–1954, November 2004. S. Klose, J. Greiner, A. Rau, A.A. Henden, D.H. Hartmann, A. Zeh, C. Ries, N. Masetti, D. Malesani, E. Guenther, J. Gorosabel, B. Stecklum, M.I. Andersen, L.A. Antonelli, C. Brinkworth, J.M. Castro Ceron, A.J. Castro-Tirado, S. Covino, A. Fruchter, J.P.U. Fynbo, G. Ghisellini, J. Hjorth, R. Hudec, M. Jelinek, L. Kaper, C. Kouveliotou, D. Lazzati, K. Lindsay, E. Maiorano, F. Mannucci, M. Nysewander, E. Palazzi, K. Pedersen, E. Pian, D.E. Reichart, J. Rhoads, E. Rol,

Refereed Journal Articles (Continued)

- I. Smail, N.R. Tanvir, A. de Ugarte Postigo, P.M. Vreeswijk, R.A.M.J. Wijers, and E. Van den Heuvel.
76. Properties of Longitudinal Flux Tube Waves III, Wave Propagation in Solar and Stellar Wind Flows, *Astron. & Astrophys.*, 424(3), 1003–1010, November 2004. M. Cuntz and S.T. Suess.
77. Protein Crystals and Their Growth, *J. Structural Biology*, 142, 2–31, 2004. A.A. Chernov.
78. Rayleigh-Benard Instability in a Vertical Cylinder with a Rotating Magnetic Field, *Internat. J. of Heat and Mass Transfer*, 47, 1877–1887, 2004. J.S. Walker, M.P. Volz, and K. Mazuruk.
79. A Realistic Accretion Disk Model for AGNs, *Astrophys. J.*, 28(11), 745–754, 2004. V. Suleimanov, K.K. Ghosh, R.A. Austin, and B.D. Ramsey.
80. Residual Gas in Closed Systems. I. Development of Gas in Fused Silica Ampoules, *J. Crystal Growth*, 267(3–4), 475–483, 2004. W. Palosz.
81. Residual Gas in Closed Systems. II. Generation and Reduction of the Gas From the Source Materials, *J. Crystal Growth*, 267(3–4), 484–497, 2004. W. Palosz.
82. Revealing the X-Ray Emission Processes of Old Rotation-Powered Pulsars: XMM-Newton Observations of PSR B0950+08, PSR B0823+26, and PSR J2043+2740, *Astrophys. J.*, 615, 908–920, November 2004. W. Becker, M.C. Weisskopf, A.F. Tennant, A. Jessner, and S.N. Zhang.
83. The Silicon Matrix as a Charge Detector in the ATIC Experiment, *Nuclear Instruments and Methods*, 524, 195–207, May 2004. V.I. Zatsepin, J.H. Adams, H.S. Ahn, G.L. Bashindzhagyan, K.E. Batkov, J. Chang, M. Christl, A.R. Fazely, O. Ganel, R.M. Gunasingha, T.G. Guzik, J. Isbert, K.C. Kim, E.N. Kouznetsov, M.I. Panasyuk, A.D. Panov, W.K.H. Schmidt, E.S. Seo, N.V. Sokolskaya, J.Z. Wang, J.P. Wefel, and J. Wu.
84. A Slow Streamer Blowout at the Sun and Ulysses, *Geophys. Res. Lett.*, 31, L05801, DOI 10.1029/2003GL018895, 2004. S.T. Suess, A. Bemporad, and G. Poletto.
85. Small-Scale Variations in the Radiating Surface of the GRB 011211 Jet, *New Astronomy*, 9(6), 435–442, 2004. P. Jakobsson, J. Hjorth, E. Ramirez-Ruiz, C. Kouveliotou, K. Pedersen, J.P.U. Fynbo, J. Gorosabel, D. Watson, B.L. Jensen, T. Grav, M.H. Hansen, R. Michelsen, M.I. Andersen, M. Weidinger, and H. Pedersen.
86. Soil Sampling Techniques for Alabama Grain Fields, *Precision Agriculture*, 5, 345–358, 2004. A.M. Thompson, J.N. Shaw, P.L. Mask, J.T. Touchton, and D.L. Rickman.
87. Solar Control on Jupiter’s Equatorial X-Ray Emissions: 26–29 November 2003 XMM-Newton Observation, *Geophys. Res. Lett.*, 32, L03S08, DOI 10.1029/2004GL021497, 2004. A. Bhardwaj, G. Branduardi-Raymont, R.F. Elsner, G.R. Gladstone, G. Ramsey, P. Rodriguez, R. Soria, J.H. Waite, Jr., T.E. Cravens.
88. Statistical Properties of Maximum Likelihood Estimators of Power Law Spectra Information, *Nucl. Instr. & Methods in Phys. Res. A*, 521, 493–511, April 2004. L.W. Howell.

Refereed Journal Articles (Continued)

89. Stormtime Particle Energization With High Temporal Resolution AMIE Potentials, *J. Geophys. Res.*, 109, 10.1029/2003JA010186, 2004. G.V. Khazanov, M.W. Liemohn, M.-C. Fok, T.S. Newman, and A.J. Ridley.
90. Structural Basis for the Catalytic Activity of Human Serine/Threonine Protein Phosphatase-5, *J. Biol. Chemistry*, 279(32), 33992–33999, August 2004. M.R. Swingle, R. Honkanen, and E.M. Ciszak.
91. Surface Tension and Viscosity of Quasicrystal-Forming Ti-Zr-Ni, *International J. of Thermophysics*, 25(4), 1155–1162, July 2004. R.W. Hyers, R.C. Bradshaw, J.R. Rogers, T.J. Rathz, G.W. Lee, K.F. Kelton, and A.K. Gangopadhyay.
92. A Theory of the von Weimarn Rules Governing the Average Size of Crystals Precipitated From a Supersaturated Solution, *J. Crys. Growth*, 264, 417–423, April 2004. D.A. Barlow, J.K. Baird, and C.-H. Su.
93. Thermally Stable Heterocyclic Imines as New Potential Nonlinear Optical Materials, *J. Phys. Chem. B.*, 108, 8531–8539, 2004. V.V. Nesterov, M.U. Antipin, V.N. Nesterov, C.E. Moore, B.H. Cardelino, and T.V. Timofeeva.
94. Transient Torque Method: A Fast and Non-Intrusive Technique to Simultaneously Determine Viscosity and Electrical Conductivity of Semiconducting and Metallic Melts, *Review of Scientific Instruments*, 75(9), 2810–2816, September 2004. C. Li, H. Ban, B. Lin, R.N. Scripa, C.-H. Su, S.L. Lehoczky, and S. Zhu.
95. The Ultra-Luminous X-Ray Source Population from the Chandra Archive of Galaxies, *Astrophys. J.*, 154, 519–539, October 2004. D.A. Swartz, K.K. Ghosh, A.F. Tennant, and K. Wu.
96. The Urban Heat Island Phenomenon: How Its Effects Can Influence Environmental Decision Making in Your Community, *Public Management*, 85(3), 8–12, 2004. M.G. Estes Jr., D.A. Quattrochi, and E. Stasiak.
97. Use of Plastic Capillaries for Macromolecular Crystallization, *J. Appl. Crystallography*, 37, 500–501, 2004. R. Potter, Y. Hong, and E.M. Ciszak.
98. Using Magnetic Fields to Control Convection During Protein Crystallization—Analysis and Validation Studies, *J. Crys. Growth*, 274, 297–306, 2004. N. Ramachandran and F.W. Leslie.
99. Verification of an Analytical Method for Measuring Crystal Nucleation Rates in Glasses From DTA Data, *J. Non-Crystalline Solids*, 337, 261–267, 2004. K.S. Ranasinghe, P.F. Wei, K.F. Kelton, C.S. Ray, and D.E. Day.
100. What the Sunspot Record Tells Us About Space Climate, *Solar Phys.*, 224, 5–19, 2004. D.H. Hathaway and R.M. Wilson.
101. Which Strategy for a Protein Crystallization Project? *Cell. Mol. Life Sci.*, 61, 525–536, 2004. C.E. Kundrot.

Refereed Journal Articles (Continued)

102. Z-Mode Sounding Within Propagation “Cavities” and Other Inner Magnetospheric Regions by the RPI Instrument on the IMAGE Satellite, *J. Geophys. Res.*, 108(A12), 1421, DOI 10.1029/2003JA010025, 2004. D.L. Carpenter, T.F. Bell, U.S. Inan, R.F. Benson, B.W. Reinisch, and D.L. Gallagher.

Contributions to Books, Conference Proceedings, Etc.

1. Advanced Computational Modeling of Vapor Deposition in a High-Pressure Reactor, *Proceedings of 2004 Conference on Advances in Internet Technologies and Applications (CAITA)*, West Lafayette, IN, July 8–11, 2004, CD-ROM, ISBN 86–7466–117–3, 2004. B.H. Cardelino, C.A. Cardelino, C.E. Moore, N. Dietz, S.D. McCall, and K.J. Bachmann.
2. AM03–AM121–115 Hard X-Ray Optics Development at MSFC, *Proceedings of SPIE Conference on Optics for EUV, X-Ray, and Gamma-Ray Astronomy (AM121)*, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5168, pp. 129–135, February 2004. B.D. Ramsey, R.F. Elsner, D. Engelhaupt, M.V. Gubarev, J.J. Kolodziejczak, G. Martin, S.L. O’Dell, C.O. Speegle, and M.C. Weiskopf.
3. Application of Land Surface Data Assimilation to Simulations of Sea Breeze Circulations, *Proceedings of AMS Conference 83rd Annual Meeting of the American Meteorological Society*, Long Beach, CA, February, 9–13, 2003, CD-ROM, 2004. S. Mackaro, W.M. Lapenta, K. Blackwell, R.J. Suggs, R.T. McNider, G.J. Jedlovec, and S. Kimball.
4. Assessing the Usefulness of AIRS Radiance Observations in a 4D-Var Assimilation Scheme Using the Penn State/NCAR Mesoscale Model Version 5 (MM5) and a Stand Alone Radiative Transfer Algorithm (SARTA), *Proceedings of American Meteorological Society 13th Conference on Satellite Meteorology and Oceanography*, Norfolk, VA, September 20–23, 2004, CD-ROM, 2004. M. Carrier, X. Zou, W.M. Lapenta, and G.J. Jedlovec.
5. Astrobiological Significance of Chemolithoautotrophic Acidophiles, *Proceedings of SPIE Conference on Instruments, Methods, and Missions for Astrobiology VII (AM121)*, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5163, pp. 179–190, February 2004. E.V. Pikuta and R.B. Hoover.
6. Astrobiology of Comets, *Proceedings of SPIE—The International Society for Optical Science and Technology 49th Annual Meeting (Instruments, Methods, and Missions for Astrobiology VIII)*, Denver, CO, August 2–6, 2004; *SPIE*, Vol. 5555, pp. 93–106, November 2004. R.B. Hoover, E.V. Pikuta, N.C. Wickramasinghe, and M.K. Wallis.
7. Asymmetric Stokes-V Profiles at the Penumbral Boundary of a Sunspot, *Proceedings of Fifth Solar-B Science Meeting*, Tokyo, Japan, November 12–14, 2003. D.P. Choudhary, K.S. Balasubramaniam, and Y. Suematsu.
8. Atlas of Bacteriomorphs in Carbonaceous Chondrites, *Proceedings of SPIE Conference on Instruments, Methods, and Missions for Astrobiology VII (AM121)*, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5163, pp. 23–35, February 2004. A.Y. Rozanov and R.B. Hoover.

Contributions to Books, Conference Proceedings, Etc. (Continued)

9. Automated Detection of Solar Loops by the Oriented Connectivity Method, *Proceedings of the 17th International Conference on Pattern Recognition*, Cambridge, United Kingdom, August 23–26, 2004, Vol. IV, p. 315, 2004. J.K. Lee, T.S. Newman, and G.A. Gary.
10. Biogeography, *UNESCO Encyclopedia of Life Support Systems, Theme 64 Geoinformation, Geoinformatics*, “1. Sample Data and Survey,” EOLSS Publishers, Oxford, U.K. [<http://www.eolss.net>], P.K. Atkinson, (ed.) 2004. D.A. Quattrochi.
11. Bubble Formation and Transport During Microgravity Materials Processing: Model Experiments on the Space Station, *Proceedings of the 42nd American Institute of Aeronautics and Astronautics Aerospace Science Meeting and Exhibit*, Reno, NV, January 5–8, 2004, AIAA 2004–0627, 2004. R.N. Grugel, A.V. Anilkumar, and C.P. Lee.
12. Chandra Observations of Supernova Remnants and Neutron Stars—An Overview, *Proceedings of COSPAR 2002, 34th Joint Committee on Space Research (COSPAR) Scientific Assembly and 2nd World Space Congress*, Houston, TX, October 10–19, 2002, *Advances In Space Research*, Vol. 33, pp. 487–494, 2004. M.C. Weisskopf.
13. Classification of Tropical Oceanic Precipitation Using High Altitude Aircraft Microwave and Electric Field Measurements, *Proceedings of 26th AMS Conference on Hurricanes and Tropical Meteorology*, Miami, FL, May 3–7, 2004, CD-ROM, pp. 172–173, 2004. D. Cecil, F.J. LaFontaine, R.E. Hood, R.J. Blakeslee, D.M. Mach, and G. Heymsfield.
14. Composition of the Chandra ACIS Contaminant, *Proceedings of SPIE Optical Science and Technology, 48th Annual Meeting*, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5165, pp. 497–508, February 2004. H. Marshall, A.F. Tennant, C. Grant, A. Hitchcock, S.L. O’Dell, and P. Plucinsky.
15. Correlation of Lightning Flash Rates With a Microburst Event, *Proceedings of American Meteorological Society (AMS) 22nd Conference on Severe Local Storms*, Hyannis, MA, October 5–8, 2004, CD-ROM, P14.6, 2004. K.M. Altino, K.R. Knupp, and S.J. Goodman.
16. Cryogenic Performance of Lightweight SiC and C/SiC Mirrors, *Proceedings of SPIE Conference on Astronomical Telescopes and Instrumentation*, Glasgow, Scotland, 2004; *SPIE*, Vol. 5487, pp. 1018–1029, October 2004. J.B. Hadaway, R. Eng, H.P. Stahl, J.R. Carpenter, J.R. Kegley, and W.D. Hogue.
17. Crystallization of a $\text{Li}_2\text{O} \cdot 2\text{SiO}_2$ Glass Under High Hydrostatic Pressures, *Ceramic Transactions*, Chapter in Melt Chemistry, Relaxation, and Solidification Kinetics of Glasses, Vol. 170, H. Li, C.S. Ray, D.M. Strachan, R. Weber, and Y. Yue (eds.), pp. 213–224, 2004. T. Fuss, D.E. Day, C.E. Leshner, and C.S. Ray.
18. Crystallization Physics in Biomacromolecular Systems, *Proceedings of 12th International Summer School on Crystal Growth (ISSCG–12)*, Berlin, Germany, Crystal Growth—From Fundamentals to Technology 2004, G. Muller, J.-J. Metois, and P. Rudolph (eds.), pp. 95–113, August 1–2, 2004. A.A. Chernov.

Contributions to Books, Conference Proceedings, Etc. (Continued)

19. Design and Preparation of a Particle Dynamics Space Flight Experiment, SHIVA, *Proceedings of the Microgravity Transport Processes in Fluid, Thermal, Biological, and Materials Sciences III Conference*, Davos, Switzerland, September 14–19, 2003, in *Transport Phenomena in Microgravity*, Vol. 1027, pp. 550–566, 2004. J.D. Trolinger, D. L’Esperance, R. Rangel, C. Coimbra, and W.K. Witherow.
20. Design Features and Capabilities of the First Materials Science Research Rack, *Proceedings of 2003 Institute of Electric and Electronics Engineering Aerospace Conference*, Big Sky, Montana, 2003, CD-ROM, Paper 2.0104, 2004. P.J. Pettigrew, S.L. Lehoczky, S.D. Cobb, T. Holloway, and L. Kitchens.
21. Developing an Empirical Density Model of the Plasmasphere Using IMAGE/RPI Observations, *Proceedings of Advances for Space Research, COSPAR*, Houston, TX, October 10–19, 2002, *Adv. Space Res.*, Vol. 33(6), pp. 829–832, 2004. X. Huang, B.W. Reinish, P. Song, P. Nsume, J.L. Green, and D.L. Gallagher.
22. Developing Glassy Magnets from Simulated Composition of Martian Soil for Exploration Applications, *Proceedings of MRS NN: Materials for Space Applications Conference*, Boston, MA, November 29–December 3, 2004, Vol. 851, Paper NN10.5.1, N. Ramachandran, C.S. Ray, and J.R. Rogers.
23. Development of a Prototype Nickel Optic for the Constellation-X Hard-X-Ray Telescope, *Proceedings of SPIE Conference on Optics for EUV, X-Ray, and Gamma-Ray Astronomy (AM121)*, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5168, pp. 112–119, February 2004. S. Basso, R.J. Bruni, O. Citterio, D. Engelhaupt, M. Ghigo, P. Gorenstein, F. Mazzoleni, S.L. O’Dell, G. Pareschi, B.D. Ramsey, S. Romaine, and C.O. Speegle.
24. Direct Observation of Pore Formation and Bubble Mobility During Controlled Melting and Re-solidification in Microgravity, *Proceedings of the Minerals, Metals and Materials Society (TMS) Annual Meeting*, Charlotte, NC, March 14–18, 2004, *Solidification Processes and Microstructures: A Symposium in Honor of Wilfried Kurz*, eds. M. Rappaz, C. Beckermann, and R. Trivedi, The Metallurgical Society, Warrendale, PA, pp. 111–116, 2004. R.N. Grugel, A. Anilkumar, and C.P. Lee.
25. Effects of Gravity on ZBLAN Glass Crystallization, *Proceedings of the Microgravity Transport Processes in Fluid, Thermal, Biological, and Materials Sciences III Conference*, Davos, Switzerland, September 14–19, 2003, in *Transport Phenomena in Microgravity*, Vol. 1027, pp. 129–137, 2004. D.S. Tucker, E.C. Ethridge, G.A. Smith, and G. Work.
26. Estimating Spatially-Distributed Surface Fluxes in a Semi-Arid Great-Basin Desert Using Landsat TM Data, “*Thermal Remote Sensing in Land Surface Processes*,” D.A. Quattrochi and J.C. Luvall (eds.), pp. 133–159, Taylor-Francis, London, UK, 2004. C.A. Laymon and D.A. Quattrochi.
27. Figure Measurements of High-Energy-X-Ray Replicated Optics, *Proceedings of SPIE Conference on Optics for EUV, X-Ray, and Gamma-Ray Astronomy (AM121)*, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5168, pp. 227–234, February 2004. M.V. Gubarev, B.D. Ramsey, T. Kester, D. Engelhaupt, C.O. Speegle, and G. Martin.

Contributions to Books, Conference Proceedings, Etc. (Continued)

28. Five Years of the Operation of the Chandra X-Ray Observatory, *Proceedings of SPIE Conference on Astronomical Telescopes and Instrumentation*, Glasgow, Scotland, June 21–24, 2004; *SPIE*, Vol. 5488, pp. 25–39, October 2004. M.C. Weisskopf.
29. Flows in the Solar Convection Zone, *Proceedings of Committee of Space Research (COSPAR) Assembly*, Paris, France, July 18–23, 2004. D.H. Hathaway.
30. Forecasting Coronal Mass Ejections From Magnetograms, *Proceedings of American Astronomical Society*, Solar Physics Division, Denver, CO, May 31–June 3, 2004, Vol. 36, p. 693, 2004. D.A. Falconer, R.L. Moore, G.A. Gary, and S. Balasubramanian.
31. Fossil Signatures Using Elemental Abundance Distributions and Bayesian Probabilistic Classification, *Proceedings of SPIE International Society for Optical Science and Technology*, 49th Annual Meeting (Instruments, Methods, and Missions for Astrobiology VIII), Denver, CO, August 2–6, 2004; *SPIE*, Vol. 5555, pp. 18–30, November 2004. M.C. Storrie-Lombardi and R.B. Hoover.
32. Four Years of Operation of the Chandra X-Ray Observatory, *Proceedings of SPIE Optical Science and Technology*, 48th Annual Meeting, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5165, pp. 389–401, February 2004. M.C. Weisskopf.
33. Framboidal Structures in Earth Rocks and in Astromaterials, *Proceedings of SPIE Conference on Instruments, Methods, and Missions for Astrobiology VII (AM121)*, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5163, pp. 36–47, February 2004. M.M. Astafieva, A.Y. Rozanov, and R.B. Hoover.
34. Gas Scintillation Proportional Counters for High-Energy X-Ray Astronomy, *Proceedings of SPIE Conference on X-Ray and Gamma-Ray Instrumentation for Astronomy XIII (AM117)*, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5165, pp. 151–156, February 2004. M.V. Gubarev, B.D. Ramsey, and J.A. Apple.
35. GOES Cloud Detection at the Global Hydrology and Climate Center, *Proceedings of American Meteorological Society Conference*, 83rd Annual Meeting, Long Beach, CA, February, 9–13, 2003. K. Laws and G.J. Jedlovec, CD-ROM, 2004.
36. The GOES-R Lightning Mapper Sensor, *Proceedings of the National Weather Association*, Annual Meeting, Portland, OR, October 16–21, 2004, Paper 20, 2004. D. Buechler, H.J. Christian, and S.J. Goodman.
37. Growth of the Facultative Anaerobes from Antarctica, Alaska, and Patagonia at Low Temperatures, *Proceedings of SPIE International Society for Optical Science and Technology*, 49th Annual Meeting (Instruments, Methods, and Missions for Astrobiology VIII), Denver, CO, August 2–6, 2004; *SPIE*, Vol. 5555, pp. 180–190, November 2004. E.V. Pikuta and R.B. Hoover.
38. Helium Cryo Testing of a SLMS™ (Silicon Lightweight Mirrors) Athermal Optical Assembly, *Proceedings of SPIE Optical Science and Technology*, 48th Annual Meeting, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5180, pp. 199–210, January 2004. M.T. Jacoby, W.A. Goodman, H.P. Stahl, A.S. Keys, J.C. Reily, R. Eng, W.D. Hogue, J.R. Kegley, R.D. Siler, H.J. Haight, J. Tucker, E.R. Wright, J.R. Carpenter, J.E. McCracken, and J.B. Hadaway.

Contributions to Books, Conference Proceedings, Etc. (Continued)

39. How Well are Recent Climate Variability Signals Resolved by Satellite Radiative Flux Estimates? *Proceedings of 13th American Meteorological Society Conference on Satellite Meteorology and Oceanography*, Norfolk, VA, September 20–23, 2004, CD-ROM, 2004. F.R. Robertson and H.-L. Lu.
40. Improving the Transition of Earth Satellite Observations From Research to Operations, *Proceedings of AIAA Space 2004 Conference*, San Diego, CA, September 27–October 2, 2004, AIAA–2004–5865, 2004. S.J. Goodman, W.M. Lapenta, and G.J. Jedlovec.
41. Indigenous Microfossils in Carbonaceous Meteorites. *Proceedings of SPIE International Society for Optical Science and Technology*, 49th Annual Meeting (Instruments, Methods, and Missions for Astrobiology VIII), Denver, CO, August 2–6, 2004; *SPIE*, Vol. 5555, pp. 1–17, November 2004. R.B. Hoover and A.Y. Rozanov.
42. Investigation of Carbon Polymer Structures with Embedded Fiber-Optic Bragg Gratings, *Proceedings of SPIE Optical Science and Technology*, 48th Annual Meeting, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5206, pp. 78–89, 2004. J. Grant, R. Kual, S. Taylor, G. Myer, and A. Sharma.
43. Issues in Informal Education: Event-Based Science Communication Involving Planetaria and the Internet, *Proceedings of Astronomical Society of the Pacific Conference Series*, NASA Office of Space Science Education and Public Outreach Conference, Chicago, IL, September 12, 2002, Vol. 319, p. 237, 2004. M.L. Adams, D.L. Gallagher, and A. Whitt.
44. JWST Primary Mirror Material Selection, *Proceedings of SPIE Conference on Astronomical Telescopes and Instrumentation*, Glasgow, Scotland, 2004; *SPIE*, Vol. 5487, pp. 818–824, October 2004. H.P. Stahl, L.D. Feinberg, J.K. Russell, and S. Texter.
45. Laboratory Experiments on Rotation of Micron Size Cosmic Dust Grains With Radiation. *Proceedings of 35th COSPAR Scientific Assembly*, Paris, France, July 18–25, 2004, CD-ROM, 2004. M.M. Abbas, P.D. Craven, J.F. Spann, Jr., D. Tankosic, A. LeClair, D.L. Gallagher, E.A. West, J. Weingartner, and W.K. Witherow.
46. Land Surface Temperature Retrievals From GOES–8 Using Emissivities Retrieved From MODIS, *Proceedings of AMS Conference 83rd Annual Meeting of the American Meteorological Society*, Long Beach, CA, February, 9–13, 2003, CD-ROM, 2004. R.J. Suggs, G.J. Jedlovec, W.M. Lapenta, and S.L. Haines.
47. LATEST Project: Operational Assessment of Total Lightning Data (The), *U.S. Proceedings of 18th International Lightning Detection Conference (ILDC)*, Helsinki, Finland, June 7–9, 2004, CD-ROM, p. 74, 2004. S.J. Goodman.
48. Macrobial Remains in Middle Proterozoic Rocks of Northern Australia, *Proceedings of SPIE International Society for Optical Science and Technology*, 49th Annual Meeting (Instruments, Methods, and Missions for Astrobiology VIII), Denver, CO, August 2–6, 2004; *SPIE*, Vol. 5555, pp. 59–69, November 2004. M.M. Astafieva, A.Y. Rozanov, R.B. Hoover, P. Vickers-Rich, and A. Wilde.

Contributions to Books, Conference Proceedings, Etc. (Continued)

49. The Marshall Space Flight Center Solar Ultraviolet Magnetograph, *Proceedings of SPIE Conference on Astronomical Telescopes and Instrumentation*, Glasgow, Scotland, 2004; *SPIE*, Vol. 5488, pp. 801–812, 2004. E.A. West, J.G. Porter, J.M. Davis, G.A. Gary, and M. Noble.
50. Microfossils in CI and CO Carbonaceous Meteorites, *Proceedings of SPIE Conference on Instruments, Methods, and Missions for Astrobiology VII (AM121)*, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5163, pp. 7–22, February 2004. R.B. Hoover, A.Y. Rozanov, G. Jerman, and J. Costen.
51. Microorganisms on Comets, Europa and the Polar Ice Caps of Mars, *Proceedings of SPIE Conference on Instruments, Methods, and Missions for Astrobiology VII (AM121)*, San Diego, CA August 3–8, 2003; *SPIE*, Vol. 5163, pp. 191–201, February 2004. R.B. Hoover and E.V. Pikuta.
52. Mirror Requirements for SAFIR, *Proceedings of SPIE Conference on Astronomical Telescopes and Instrumentation*, Glasgow, Scotland, 2004; *SPIE*, Vol. 5487, pp. 1613–1616, October 2004. H.P. Stahl, D.T. Leisawitz, and D.J. Benford.
53. Modified Laser Flash Method for Thermal Properties Measurements and the Influence of Heat Convection, *Proceedings of the International Mechanical Engineering Congress and Research and Development Exposition*, Washington, DC, November 15–21, 2003; *ASME*, Vol. 1, pp. 41734.1–7, 2004. B. Lin, S. Zhu, H. Ban, C. Li, R.N. Scripa, C.-H. Su, and S.L. Lehoczky.
54. Multivariable Parametric Cost Model for Ground Optical Telescope Assembly, *Proceedings of SPIE Conference on Optical Engineering*; *SPIE*, Vol. 5497, pp. 173–180, September 2004. H.P. Stahl, G.H. Rowell, G. Reese, and A. Byberg.
55. NASA/MSFC/NSSTC Science Communication Roundtable, *Proceedings of Astronomical Society of the Pacific Conference Series*, NASA Office of Space Science Education and Public Outreach Conference, Chicago, IL, September 12, 2002, Vol. 319, p. 235, 2004. M.L. Adams, D.L. Gallagher, and R. Koczor.
56. Nucleation and Crystallization as Induced by Bending Stress in Lithium Silicate Glass Fibers, *Proceedings of the International Congress on Glass Conference*, Sao Paulo, Brazil, September 21–25, 2003; *J. Non-Crystalline Solids*, Vol. 348, pp. 1–6, 2004. S.T. Reis, C.W. Kim, R.K. Brow, and C.S. Ray.
57. Particle Acceleration and Radiation Associated With Magnetic Field Generation From Relativistic Collisionless Shocks, *Proceedings of Gamma Ray Burst Symposium*, Santa Fe, NM, September 8–12, 2003; *AIP Conference Proceedings*, Vol. 727, pp. 290–293, September 2004. K. Nishikawa, P.E. Hardee, G.A. Richardson, R.D. Preece, H. Sol, and G.J. Fishman.
58. Performance of Gas Scintillation Proportional Counter Array for High-Energy X-Ray Observatory, *Proceedings of SPIE Conference on Astronomical Telescopes and Instrumentation*, Glasgow, Scotland, 2004; *SPIE*, Vol. 5501, pp. 339–345, 2004. M.V. Gubarev, B.D. Ramsey, and J.A. Apple.

Contributions to Books, Conference Proceedings, Etc. (Continued)

59. Potential Application of Anaerobic Extremophiles for Hydrogen Production, *Proceedings of SPIE International Society for Optical Science and Technology*, 49th Annual Meeting (Instruments, Methods, and Missions for Astrobiology VIII), Denver, CO, August 2–6, 2004; *SPIE*, Vol. 5555, pp. 203–214, November 2004. E.V. Pikuta and R.B. Hoover.
60. Quantitative Spatial Analysis of Remotely Sensed Imagery, *In WorldMinds: Geographical Perspectives on 100 Problems*, D.G. Janelle, B. Warf, and K. Hansen (eds.), Kluwer Academic Publishers, Boston, MA, pp. 559–564, 2004. N. Lam, C.W. Emerson, and D.A. Quattrochi.
61. Regional Assimilation of NASA Atmospheric Infrared Sounder (AIRS) Data, *Proceedings of American Meteorological Society 13th Conference on Satellite Meteorology and Oceanography*, Norfolk, VA, September 20–23, 2004, CD-ROM, 2004. S. Chou, W.M. Lapenta, G.J. Jedlovec, W. McCarty, and J.R. Mecikalski.
62. A Review of Early Chandra Observations of X-Ray Binaries in Nearby Galaxies, *Proceedings of Jan van Paradijs Memorial Symposium*, Amsterdam, The Netherlands, June 5–9, 2001; “From X-Ray Binaries to Gamma-Ray Bursts,” E.P.J. van den Heuvel, L. Kaper, E. Rol, and R.A.M.J. Wijers (eds.), pp. 137–144, Astronomical Society of the Pacific Conference Series, Vol. 308, 2004. M.C. Weisskopf.
63. Salt Tolerant and High-pH-Resistant Hydrogenase From Haloalkaliphilic Sulfate-Reducing Bacterium *Desulfonatronum Thiodismutans*, *Proceedings of SPIE International Society for Optical Science and Technology*, 49th Annual Meeting (Instruments, Methods, and Missions for Astrobiology VIII), Denver, CO, August 2–6, 2004; *SPIE*, Vol. 5555, pp. 191–202, November 2004. E.N. Detkova, E.V. Pikuta, and R.B. Hoover.
64. Science Data Processing for the Advanced Microwave Scanning Radiometer—Earth Observing System, *Proceedings of SPIE International Society for Optical Science and Technology*, 49th Annual Meeting (Instruments, Methods, and Missions for Astrobiology VIII), Denver, CO, August 2–6, 2004; *SPIE*, Vol. 5548, pp. 195–206, August 2004. H.M. Goodman, K. Regner, H. Conover, P. Ashcroft, F. Wentz, D. Conway, E. Lobl, B. Beaumont, L. Hawkins, and S. Jones.
65. The Severe Weather Outbreak of 10 November 1002: Lightning and Radar Analysis of Storms in the Deep South, *Proceedings of American Meteorological Society 22nd Conference on Severe Local Storms*, Hyannis, MA, October 5–8, 2004, CD-ROM, 16B.8, 2004. D. Buechler, E.W. McCaul, Jr., S.J. Goodman, R.J. Blakeslee, J. Bailey, and P. Gatlin.
66. Signatures in Lightning Activity During Tennessee Valley Severe Storms of 5–6 May, 2003, *Proceedings of American Meteorological Society 22nd Conference on Severe Local Storms*, Hyannis, MA, October 5–8, 2004, CD-ROM, 12.3, 2004. P. Gatlin and S.J. Goodman.
67. Solar Magnetic Explosions, Spicules, and the Heliosphere, *Proceedings of 2004 Conference of the American Astronomical Society/Solar Physics Division*, Denver, CO, May 30–June 3, 2004, *Bull. Amer. Astron. Soc.*, Vol. 36, p 682, 2004. R.L. Moore and Y. Yamauchi.
68. Step and Kink Dynamics in Inorganic and Protein Crystallization, *Materials Res. Bull. (MRS)*, Vol 29(12), pp. 927–934, December 2004. A.A. Chernov, L. Rashkovich, P.G. Vekilov, and J.J. De Yoreo.

Contributions to Books, Conference Proceedings, Etc. (Continued)

69. Sun and the Heliosphere as an Integrated System, (The) Kluwer Academic Publishers, 2004, ISBN 1-4020-2830-X (HB), ISBN 1-4020-2831 (e-book), *Highlights of Astronomy*, The Netherlands, 2004. G. Poletto and S.T. Suess (eds.).
70. Torque Transient of Magnetically Drive Flow for Viscosity Measurement, *Proceedings of 2004 Heat Transfer/Fluids Engineering Summer Conference*, Charlotte, NC, July 11–15, 2004, ASME Proceedings, ISBN 0-7918-3704, pp. 56715.1–5, 2004. H. Ben, B. Lin, C. Li, R.N. Scripa, C.-H. Su, and S.L. Lehoczky.
71. Use of Different Methods for Discovery of Ice-Entrapped Microorganisms in Ancient Layers of the Antarctic Glacier, *Proceedings of 34th COSPAR Scientific Assembly The Second World Space Congress*, Houston, TX, October 10–19, 2002; *Advances in Space Research*, Vol. 33, pp. 1222–1230, 2004. S.S. Abyzov, R.B. Hoover, S. Imura, I.N. Mitskevich, T. Naganuma, M.N. Poglazova, and M.V. Ivanov.
72. Use of MODIS Land and Sea Surface Temperatures to Initialize Mesoscale Models, *Proceedings of AMS Conference 83rd Annual Meeting of the American Meteorological Society*, Long Beach, CA, February, 9–13, 2003, CD-ROM, 2004. W.M. Lapenta, S.L. Haines, G.J. Jedlovec, and S. Mackaro.
73. Use of Satellite Data Assimilation to Infer Land Surface Thermal Inertia, *Proceedings of AMS Conference 83rd Annual Meeting of the American Meteorological Society*, Long Beach, CA, February, 9–13, 2003, CD-ROM, 2004. W.M. Lapenta, R.T. McNider, A. Biazar, R.J. Suggs, G.J. Jedlovec, and S. Dembek.
74. Vertical Profiling of Air Pollution at RAPCD, *Proceedings of SPIE International Society for Optical Science and Technology*, 49th Annual Meeting (Instruments, Methods, and Missions for Astrobiology VIII), Denver, CO, August 2–6, 2004; *SPIE*, Vol. 5547, pp. 1–15, September 2004. M.J. Newchurch, K.A. Fuller, D.A. Bowdle, S. Johnson, K.R. Knupp, N. Gillani, A. Biazar, R.T. McNider, and J. Burris.
75. X-Ray Testing Constellation-X Optics at MSFC's 100-M Facility, *Proceedings of SPIE Conference on Optics for EUV, X-Ray, and Gamma-Ray Astronomy (AM121)*, San Diego, CA, August 3–8, 2003; *SPIE*, Vol. 5168, pp. 306–317, February 2004. S.L. O'Dell, M. Baker, D. Content, M. Freeman, P. Glenn, M.V. Gubarev, J. Hair, W. Jones, M.K. Joy, J. McCracken, G. Nanan, S. Owens, R. Petre, W. Podgorski, B.D. Ramsey, T. Saha, J. Stewart, D. Swartz, W. Zhang, and G. Zirnstein.
76. X-Ray Vision, *OE Magazine*, 2004 Vol. 4(6), pp. 18–21, SPIE (publ.), 2004. B.D. Ramsey and M.C. Weisskopf.

Published Abstracts

1. Auroral and Non-Auroral X-Ray Emissions From Jupiter: A Comparative View, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1275, November 3, 2004. A. Bhardwaj, R.F. Elsner, G.R. Gladstone, J.H. Waite, Jr., N. Lugaz, T.E. Cravens, G. Branduardi-Raymont, G. Ramsay, R. Soria, P. Ford, P. Rodriquez, T. Majeed, and D. Grodent.
2. Boreal Winter Comparison of Auroral Images From Polar UVI and IMAGE FUV, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1587, November 3, 2004. J.F. Spann, Jr., G.A. Germany, and W. Maddox.
3. Challenges in Modeling the Sun-Earth System, 2004 Joint Assembly: American Geophysical Union (AGU), The Canadian Geophysical Union (CGU) and the Society of Exploration Geophysicists (SEG), Montreal, Canada, May 17–24, 2004; *Eos*, 85(17), p. JA407, April 27, 2004. J.F. Spann, Jr.
4. Classification of Tropical Oceanic Precipitation Using High Altitude Aircraft Microwave and Electric Field Measurements, 2004 Joint Assembly: American Geophysical Union (AGU), The Canadian Geophysical Union (CGU) and the Society of Exploration Geophysicists (SEG), Montreal, Canada, May 17–24, 2004; *Eos*, 85(17), p. JA212, April 27, 2004. D. Cecil, F.J. LaFontaine, R.E. Hood, R.J. Blakeslee, D.M. Mach, and G. Heymsfield.
5. Compositional Variability of the Solar Wind: The Need for an Ultra-High Temporal Resolution Mass Spectrometer for Studies of Solar Wind and Coronal Mass Ejection Boundaries, 2004 Joint Assembly: American Geophysical Union (AGU), The Canadian Geophysical Union (CGU) and the Society of Exploration Geophysicists (SEG), Montreal, Canada, May 17–24, 2004; *Eos*, 85(17), p. JA375, April 27, 2004. M.L. Adrian, R.B. Shelton, S.T. Suess, D.L. Gallagher, P.D. Craven, and D.C. Hamilton.
6. Conductance Effects on Inner Magnetospheric Plasma Morphology: Model Comparisons With IMAGE EUV, MENA and HENA Data, 2004 Joint Assembly: American Geophysical Union (AGU), The Canadian Geophysical Union (CGU) and the Society of Exploration Geophysicists (SEG), Montreal, Canada, May 17–24, 2004; *Eos*, 85(17), p. JA363, April 27, 2004. M.W. Liemohn, A.J. Ridley, J.U. Kozyra, D.L. Gallagher, P.C. Brandt, M.G. Henderson, M.H. Denton, J.M. Jahn, E.C. Roelof, R.M. DeMagistre, and D.G. Mitchell.
7. Correlation of Far Ultraviolet Lunar Albedo With Solar Activity, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1514, November 3, 2004. W. Maddox, J.F. Spann, Jr., and G.A. Germany.
8. A Detection of the Same Hot Plasma in the Corona—During a CME—and Later at Ulysses, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1483, November 3, 2004. S.T. Suess and G. Poletto.
9. Dimensional Reduction: A Method for Retrieving Lightning Change, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F258, November 3, 2004. W.J. Koshak.

Published Abstracts (Continued)

10. GLAST Burst Monitor Trigger Classification Algorithm, Meeting of the High Energy Astrophysics Division (HEAD) of the American Astronomical Society (AAS), New Orleans, LA, September 8–11, 2004; *Bull. AAS*, 2004HEAD...8.1814P, August 2004. D.J. Perrin, E.D. Sidman, C.A. Meegan, M.S. Briggs, V. Connaughton.
11. GRO J2058+42 Observations with Chandra and detection of a Likely Optical Counterpart, Meeting of the High Energy Astrophysics Division (HEAD) of the American Astronomical Society (AAS), New Orleans, LA, September 8–11, 2004; *Bull. AAS*, 2004HEAD...8.4004W, August 2004. C.A. Wilson, M.J. Coe, M.H. Finger, M.C. Weisskopf, J.C. Greiner, and P. Reig.
12. IMAGE-POLAR Concurrent Plasmopause Observations, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1546, November 3, 2004. M.L. Adrian, D.L. Gallagher, and P.D. Craven.
13. Laboratory Experiments on Dust Grain Charging, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1511, November 3, 2004. M.M. Abbas, P.D. Craven, J.F. Spann, Jr., D. Tankosic, A. LeClair, and E.A. West.
14. The Nonlinear Coupling of Electromagnetic Ion Cyclotron and Lower Hybrid Waves in the Ring Current Region. 2004 Joint Assembly: American Geophysical Union (AGU), The Canadian Geophysical Union (CGU) and the Society of Exploration Geophysicists (SEG), Montreal, Canada, May 17–24, 2004, *Eos*, 85(17), p. JA419, April 27, 2004. G.V. Khazanov.
15. Observations of Plasma Transient on the Lobe Field Line During the Substorm, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1530, November 3, 2004. L.A. Avanov, V.N. Smirnov, and M.O. Chandler.
16. Observed Relationship Between Ion Energization and the Broadband ELF Spectrum, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1558, November 3, 2004. V.N. Coffey, M.O. Chandler, N. Singh, J. Miller, and T.E. Moore.
17. An Orbital “Virtual Radar” From TRMM Passive Microwave and Lightning Observations, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F270, November 3, 2004. D.J. Boccippio.
18. The Origin and Evolution of Deep Plasmaspheric Notches, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1456, November 3, 2004. D.L. Gallagher, M.L. Adrian, and M.W. Liemohn.
19. Packaging a Successful NASA Mission to Reach a Large Audience Within a Small Budget—Earth’s Dynamic Space: Solar-Terrestrial Physics and NASA’s Polar Mission, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F538, November 3, 2004. N.J. Fox, R. Goldberg, R.J. Barnes, J.B. Sigwarth, K.B. Beisser, T.E. Moore, R.A. Hoffman, C.T. Russell, J.D. Scudder, J.F. Spann, Jr., P. Newell, J.D. Manietti, L. Hobson, S.P. Gribben, G.A. Germany, J. Mobilia, and M. Schultz.

Published Abstracts (Continued)

20. A Preliminary ZEUS Lightning Location Error Analysis Using a Modified Retrieval Theory, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F265, November 3, 2004. V. Elander, W.J. Koshak, and D. Phanord.
21. The Role of the Heavy Ions in the Wave Magnetospheric Phenomena, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1533, November 3, 2004. G.V. Khazanov, N. Singh, K.V. Gamayunov, and E.N. Krivorutsky.
22. Supergranule Diffusion and Active Region Decay, 204th Meeting of the American Astronomical Society, Denver, CO, May 30–June 3, 2004; *Bull. AAS*, 2004AAS204.3712H, May 2004. D.H. Hathaway and D.P. Choudhary.
23. Thermal N⁺ in the Inner Magnetosphere, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1456, November 3, 2004. P.D. Craven, T.E. Moore, and D.L. Gallagher.
24. The Utility of Auroral Image-Based Activity Metrics, 2004 Fall Meeting of the American Geophysical Union, San Francisco, CA, December 13–17, 2004; *Eos*, 85(47), p. F1471, November 3, 2004. G.A. Germany, J.F. Spann, Jr., C. Deverapalli, and C.-C. Hung.

PRESENTATIONS

1. Accelerating Exploration Through the Sharing of Best Practices in Research Partnerships, 24th International Symposium on Space Technology and Science, Miyazaki, Japan, May 30–June 6, 2004. M.E. Nall and J. Casas.
2. Accuracy Evaluation of Electron-Probe Microanalysis as Applied to Semiconductors and Silicates. 2004 Australian Conference on Microscopy and Microanalysis 18, Geelong, Australia, February 1–6, 2004. P.K. Carpenter and J. Armstrong.
3. Analytical Solution for the Critical Velocity of Pushing/Engulfment Transition. Transactions Mineral and Metals Annual Conference, Charlotte, NC, March 14–18, 2004. A.V. Catalina, D.M. Stefanescu, and S. Sen.
4. Anomalous Scatter BRDF Results for SiC, C-SiC and O-30 Beryllium. Mirror Technology Days, Huntsville, AL, August 18–20, 2004, [optics.nasa.gov/tech_days]. H.P. Stahl.
5. Application of Satellite-Derived Land Surface Temperature to Minimum Temperature Forecasting, 13th Conference on Satellite Meteorology and Oceanography, American Meteorological Society, Norfolk, VA, September 20–24, 2004. P.R. Jones, G.J. Jedlovec, R.J. Suggs, and S.L. Haines.
6. AS04–AS02–133 Electroformed-Nickel Hard-X-Ray Optic Development at NASA/MSFC, SPIE Conference on Astronomical Telescopes and Instrumentation, Glasgow, Scotland, June 21–24, 2004. B.D. Ramsey, R.F. Elsner, D. Engelhaupt, M.V. Gubarev, J.J. Kolodziejczak, S.L. O'Dell, C.O. Speegle, and M.C. Weisskopf.
7. Asymmetric Stokes-V Profiles at the Penumbra Boundary of a Sunspot, Fifth Solar-B Science Meeting, Tokyo, Japan, November 12–14, 2003. D.P. Choudhary, K.S. Balasubramaniam, and Y. Suematsu.
8. Atmospheric Correction of Imagery, 0.35–12 Micrometers, Based on First Principles, Association of American Geographers Conference, Philadelphia, PA, March 17, 2004. D.L. Rickman and J.C. Luvall.
9. Automated Detection of Solar Loops by the Oriented Connectivity Method, 17th International Conference on Pattern Recognition, Cambridge, United Kingdom, August 23–26, 2004. J.K. Lee, T.S. Newman, and G.A. Gary.
10. Background Studies for EXIST. Beyond Einstein: From the Big Bang to Black Holes, San Mateo, CA, May 12–15, 2004. C.A. Wilson, G.N. Pendleton, and G.J. Fishman.
11. Biodosimetry as a New Paradigm for Determination of Radiation Risks and Risk-Mitigation in Astronauts Exposed to Space Radiation. 75th Annual Scientific Meeting, Anchorage, Alaska, May 2–6, 2004. R.C. Richmond, A. Cruz, and K. Bors.
12. Bridgman Growth of Germanium Crystals in a Rotating Magnetic Field, International Conference on Crystal Growth 14, Grenoble, France, August 9–13, 2004. M.P. Volz, J.S. Walker, M. Schweizer, S.D. Cobb, and F.R. Szofran.

PRESENTATIONS (Continued)

13. The Burst and Transient Source Experiment (BATSE) Earth Occultation Catalog. Beyond Einstein: From the Big Bang to Black Holes, San Mateo, CA, May 12–15, 2004. C.A. Wilson-Hodge.
14. Challenges in Modeling the Sun-Earth System, GEM Workshop, Snowmass, CO, June 20–25, 2004. J.F. Spann, Jr.
15. Challenges in Physics of Biocrystals and Biocrystallization, International Conference on the Crystallization of Biological Macromolecules 10 (ICCBM10), Beijing, China, June 5–9, 2004. A.A. Chernov.
16. Chandra Observations of Microquasars, The Fifth Microquasar Workshop, Beijing, China, June 7–11, 2004. M.C. Weisskopf.
17. Chandra Overview, Astronomical Telescopes and Instrumentation 2004, Glasgow, Scotland, June 21–25, 2004. M.C. Weisskopf.
18. Chandra X-Ray Observations of Jovian Low-Latitude Emissions: Morphological, Temporal, and Spectral Characteristics, 36th Annual Meeting of the American Astronomical Society's Division of Planetary Sciences, Louisville, KY, November 8–12, 2004. A. Bhardwaj, R.F. Elsner, G.R. Gladstone, T.E. Cravens, J.H. Waite, Jr., G. Branduardi-Raymont, and P. Ford.
19. The Chandra X-Ray Observatory: An Overview, Topics in X-Ray Astronomy, Tübingen, Germany, February 23–25, 2004. M.C. Weisskopf.
20. The Chandra X-Ray Observatory: Observations of Neutron Stars, The Electromagnetic Spectrum of Neutron Stars, Marmaris, Turkey, June 13–18, 2004. M.C. Weisskopf.
21. A Cloud Mask for AIRS, 13th Conference on Satellite Meteorology and Oceanography, American Meteorological Society, Norfolk, VA, September 20–24, 2004. N.G. Brubaker and G.J. Jedlovac.
22. CME Eruption Onset Observations from EIT and SXT, Solar, Heliosphere and Interplanetary (SHINE) Workshop, Big Sky, MT, June 28–July 1, 2004. A.C. Sterling.
23. Coherence Effects in Coupled Optical Resonators, 34th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, UT, January 4–8, 2004. D.D. Smith.
24. Coherence Phenomena in Coupled Optical Resonators, Invited talk to Oklahoma State University, Stillwater, OK, April 8, 2004. D.D. Smith.
25. Compact Flares and CMEs, RHESSI/SOHO/TRACE Workshop: Coordinated Observations of Flares and CMEs, Sonoma, CA, December 8–11, 2004. R.L. Moore and A.C. Sterling.
26. A Comparison of Experimental EPMA Data and Monte Carlo Simulations, Workshop on Modeling Electron Transport for Applications in Electron and X-Ray Analysis and Metrology, Gaithersburg, MD, November 8–10, 2004. P.K. Carpenter.
27. Computed Tomography and its Application for the 3D Characterization of Coarse Grained Meteorites, Microscopy and Microanalysis 2004 Conference, Savannah, GA, August 1–5, 2004. D.C. Gillies, H.P. Engel, and P.K. Carpenter.

PRESENTATIONS (Continued)

28. Containerless Measurement of Thermophysical Properties of Ti-Zr-Ni Alloys, The Minerals, Metals and Materials Society (TMS) Annual Meeting, Charlotte, NC, March 14–18, 2004. R.W. Hyers, R.C. Bradshaw, J.R. Rogers, T.J. Rathz, G.W. Lee, A.K. Gangopadhyay, and K.F. Kelton.
29. Control of Convection in Containerless Processing, The Minerals, Metals and Materials Society (TMS) Annual Meeting, Charlotte, NC, March 14–18, 2004. R.W. Hyers, D.M. Matson, K.F. Kelton, and J.R. Rogers.
30. Cross-Scale Coupling in the Inner Magnetosphere, Huntsville 2004 Workshop, Huntsville, AL, October 18–22, 2004. G.V. Khazanov, D.L. Gallagher, J.F. Spann, Jr., and N. Singh.
31. Cryogenic Test Results of Hextek Mirror, Mirror Technology Days, Huntsville, AL, August 18–20, 2004, [optics.nasa.gov/tech_days]. J. Hadaway, H.P. Stahl, R. Eng, and W. Hogue.
32. Crystal Growth of CdTe by Gradient Freeze in Universal Multizone Crystallizator (UMC), 4th International Conference on Solidification and Gravity, Miskolc, Hungary, September 6–10, 2004. C.-H. Su, S.L. Lehoczky, C. Li, D. Knuteson, B. Raghothamachar, M. Dudley, J. Szoke, and P. Barczy.
33. Crystal Quality, the Long and the Short of It, International Conference on the Crystallization of Biological Macromolecules 10, Beijing, China, June 5–9, 2004. E.H. Snell.
34. Crystallization From Solutions, European Space Foundation—European Space Agency (ESF-ESA) Workshop, Obernai, France, May 3–7, 2004. A.A. Chernov.
35. Crystallization of a $\text{Li}_2\text{O} \cdot 2\text{SiO}_2$ Glass Under High Hydrostatic Pressures, 106th Annual Meeting of the American Ceramic Society, Indianapolis, IN, April 18–21, 2004. T. Fuss, C.S. Ray, C.E. Lesher, and D.E. Day.
36. Decades of Data: Extracting Trends from Microgravity Crystallization History, Symposium on Neutron Protein Crystallography, Japan Atomic Energy Research Institute, Tokyo, Japan, February 14–20, 2004. R.A. Judge, E.H. Snell, R. Kephart, and M.J. van der Woerd.
37. Detached Growth of Germanium by Directional Solidification, 14th International Conference on Crystal Growth in Conjunction with the 12th International Conference on Vapor Growth and Epitaxy (XIV ICCG/XII ICVGE), Grenoble, France, August 9–13, 2004. W. Palosz, M.P. Volz, S.D. Cobb, S. Motakef, and F.R. Szofran.
38. Determine Important Nuclear Fragmentation Processes for Space Radiation Protection in Human Space Explorations, Physics Colloquium, University of Alabama in Huntsville, AL, October 5, 2004. Z.-W. Lin.
39. Developing Glassy Magnets From Simulated Composition of Martian Soil for Exploration Applications, Materials Research Society (MRS)—Materials for Space Applications, Boston, MA, November 29–December 3, 2004. N. Ramachandran, C.S. Ray, and J.R. Rogers.
40. Diabatic Initialization of Mesoscale Models in the Southeastern United States: Can 0 to 12h Warm Season QPF Be Improved? 20th Conference on Weather Analysis and Forecasting, Seattle, WA, January 11–15, 2004. W.M. Lapenta, T. Bradshaw, J. Burks, C. Darden, and S. Dembek.

PRESENTATIONS (Continued)

41. Differential Velocity Between Solar Wind Protons and Alpha Particles in Pressure Balance Structures, Ulysses Science Working Tem Meeting, Noordwijk, The Netherlands, April 22–23, 2004. S.T. Suess.
42. Diffraction and Imaging Study of Imperfections of Protein Crystals With Coherent X-Rays, American Crystallographic Association Annual Meeting 2004, Chicago, IL, July 17–22, 2004. Z.W. Hu, B.R. Thomas, A.A. Chernov, Y.S. Chu, and B. Lai.
43. Diffraction Studies of the Atomic Vibrations of Bulk and Surface Atoms in the Reciprocal and Real Spaces of Nanocrystalline SiC, European Powder Diffraction Conference, Prague, Czech Republic, September 2–5, 2004. S. Stel'makh, E. Grzanka, H. Weber, S. Vogel, W. Palosz, and B. Palosz.
44. Direct Observation of Controlled Melting and Resolidification of Solidification of Succinonitrile Mixtures in a Microgravity Environment, 2004 The Minerals, Metals and Materials Society Annual Meeting, Charlotte, NC, March 14–18, 2004. R.N. Grugel, A.V. Anilkumar, and C.P. Lee.
45. Discussion of Materials Characterization Study, Mirror Technology Days, Huntsville, AL, August 18–20, 2004, [optics.nasa.gov/tech_days]. H.P. Stahl.
46. DNA In a Tunnel: A Comfy Spot for Recognition—or—The Structure of BsoBI Complexed With DNA, Invited talk at NASA/Johnson Space Center, Houston, TX, March 26, 2004. M.J. van der Woerd.
47. Early Results of the Convection and Moisture Experiment, 58th Interdepartmental Hurricane Conference, Charleston, SC, February 29–March 5, 2004. R.E. Hood.
48. Electrical Conductivity of HgTe at High Temperatures, 2004 Materials Research Society (MRS) Fall Meeting, Boston, MA, November 29–December 3, 2004. C. Li, S.L. Lehoczky, C.-H. Su, and R.N. Scripa.
49. Electrocomposite of Alumina in Nickel Matrix, 205th Meeting of the Electrochemical Society, San Antonio, TX, May 9–13, 2004. B.D. Ramsey, P. Xiong-Skiba, R. Hulguin, and D. Engelhaupt.
50. Electrodeposition of High Quality Nickel Phosphorous Alloys for Pollution Reduction and Energy Conservations, The American Electroplaters and Surface Finishers Society's Aerospace/Airline Plating and Metal Finishing Forum, Tulsa, OK, March 29–April 1, 2004. B.D. Ramsey and D. Engelhaupt.
51. Electrodeposition of High Quality Nickel Phosphorous Alloys for Pollution Reduction and Energy Conservation, American Electroplaters and Surface Finishers Society Week, Lake Buena Vista, FL, January 26–30, 2004. D. Engelhaupt and B.D. Ramsey.
52. Evidence of “Tether Cutting” Reconnection in the Onset of a Quadrupolar Solar Magnetic Eruption, 204th Meeting of the American Astronomical Society, Denver, CO, May 30–June 3, 2004. D.P. Choudhary, A.C. Sterling, R.L. Moore, and V. Yurchyshyn.
53. Evolution of In-Situ Generated Reinforcement Precipitates in Metal Matrix Composites, International Conference on Solidification Science and Processing, Emerging Trends, Bangalore, India, November 17–20, 2004. S. Sen, S.K. Kar, A.V. Catalina, D.M. Stefanescu, and B.K. Dhindaw.

PRESENTATIONS (Continued)

54. External and Internal Reconnection in Two Filament-Carrying Magnetic-Cavity Solar Eruptions, 204th Meeting of the American Astronomical Society, Denver, CO, May 30–June 3, 2004. A.C. Sterling and R.L. Moore.
55. Fabrication and Testing of Active and Adaptive Cyanate Ester Composite Mirrors, Mirror Technology Days, Huntsville, AL, August 18–20, 2004, [optics.nasa.gov/tech_days]. H.E. Bennett.
56. Fabrication and Testing of Binary-Phase Fourier Gratings for Non-Uniform Array Generation, Optical Society of America's Diffractive Optics and Micro-Optics Conference, Rochester, NY, October 9–13, 2004. A.S. Keys, R.W. Crow, P.R. Ashley, T.R. Nelson, Jr., J.H. Parker, and E.A. Beecher.
57. Ferroelectric Field Effect Transistor Model Using Partitioned Ferroelectric Layer and Partial Polarization, 16th International Symposium on Integrated Ferroelectrics, Gyeongju, Korea, April 5–8, 2004. T.C. MacLeod and F.D. Ho.
58. Final Results of the Ball AMSD Beryllium Mirror, Mirror Technology Days 2004, Huntsville, AL, August 17–19, 2004. D.M. Chaney.
59. First Chandra Field: The Identification of Leon X–1 (The), 2004 Meeting of the High Energy Astrophysics Division of the American Astronomical Society, New Orleans, LA, September 8–11, 2004. M.C. Weisskopf, T. Aldcroft, R.A. Cameron, P. Gandhi, C. Foellmi, R.F. Elsner, S.K. Patel, and S.L. O'Dell.
60. First Terrestrial Soft X-Ray Aurora Observations by Chandra, Huntsville Modeling Workshop: Challenges to Modeling the Sun-Earth System, Huntsville, AL, October 18–22, 2004. A. Bhardwaj, R.F. Elsner, G.R. Gladstone, J.H. Waite, Jr., T.E. Cravens, N. Ostgaard, S.-W. Chang, A.E. Metzger, and T. Majeed.
61. Fluorescent Approaches to High Throughput Crystallography. 10th International Conference on the Crystallization of Biological Macromolecules, Beijing, China, June 5–8, 2004. E.F. Minamitani and M.L. Pusey.
62. Fluorescent Approaches to High Throughput Crystallography, 2004 International Conference on Structural Genomics, Washington, DC, November 17–21, 2004. M.L. Pusey and E.L. Forsythe.
63. Forecasting Coronal Mass Ejections From Magnetograms, Living With a Star Workshop, Boulder, CO, March 23–26, 2004. D.A. Falconer, R.L. Moore, G.A. Gary, and S. Balasubramanian.
64. Forecasting Coronal Mass Ejections from Magnetograms, Solar, Heliospheric and Interplanetary Environment (SHINE) 2004 Workshop, Big Sky, MT, June 27–July 2, 2004. D.A. Falconer, R.L. Moore, G.A. Gary, and S. Balasubramanian.
65. Future Space Telescope Mirror Technology Requirements, Frontiers in Optics 2004—the 88th Annual Meeting, Rochester, NY, October 10–14, 2004. H.P. Stahl.
66. Gain-Assisted Superluminal Propagation in Coupled Optical Resonators, Optical Society of America Frontiers in Optics Conference (OSA), Rochester, NY, October 10–14, 2004. H. Chang and D.D. Smith.

PRESENTATIONS (Continued)

67. Gamma-Ray Focusing Optics for Small Animal Imaging, IEEE Rome 2004 Medical Imaging Conference, Rome, Italy, October 16–22, 2004. M.J. Pivovarov, W.C. Barber, W.W. Craig, B.H. Hasegawa, B.D. Ramsey, and C. Taylor.
68. GLAST Burst Monitor (The), 2004 American Physical Society Meeting, Denver, CO, May 1–4, 2004. C.A. Meegan.
69. Global Lightning Activity, India-United States Conference on Space Science, Applications, and Commerce, Bangalore, India, June 21–25, 2004. H.J. Christian.
70. Global Lightning Activity, University of Mexico, Mexico City, Mexico, March 14–20, 2004. H.J. Christian.
71. Grace Collaboration in the Swift Era, 2004 Meeting of the High Energy Astrophysics Division (HEAD) of the American Astronomical Society (AAS), New Orleans, LA, September 8–11, 2004. C. Kouveliotou.
72. High Pressure X-Ray Diffraction Studies of Nanocrystalline Materials, 22nd European Crystallographic Meeting, Budapest, Hungary, August 26–31, 2004. B. Palosz, S. Stel'makh, E. Grzanka, S. Gierlotka, and W. Palosz.
73. Hot Stuff? Thermal Imaging Applied to Cryocrystallography, Hauptmann Woodward Medical Research Institute, Buffalo, NY, April 26, 2004. E.H. Snell.
74. How Consistent Are Recent Variations in the Tropical Energy and Water Cycle Resolved by Satellite Measurements? IGWCO/GEWEX/UNESCO Workshop on Trends in Global Water Cycle Variables, Paris, France, November 3–5, 2004. F.R. Robertson and H.-L. Lu.
75. How Large Scale Flows in the Solar Convection Zone May Influence Solar Activity, NSO Workshop 22: Large Scale Structures and Their Role in Solar Activity, Sunspot, NM, October 18–22, 2004. D.H. Hathaway.
76. Human Exploration Initiative: Space Radiation Measurement Needs (The), American Geophysical Union Fall Meeting, San Francisco, CA, December 13–17, 2004. J.H. Adams, N. Barghouty, M. Bhattacharya, and Zi-Wei Lin.
77. Hyperspectral Imaging on the *International Space Station*: An Innovative Approach to Commercial Development of Space, 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 4–8, 2004. R.K. Robinson.
78. Imaging Beyond What Man Can See, Monitoring Science and Technology Symposium, Denver, CO, September 21–24, 2004. G. May and B.K. Mitchell.
79. Improved Edge Performance in MRF, Mirror Technology Days, Huntsville, AL, August 18–20, 2004, [optics.nasa.gov/tech_days]. A. Shorey, A. Jones, P. Dumas, and M. Tricard.
80. Improvements in Electron-Probe Microanalysis: Applications to Terrestrial, Extraterrestrial, and Space Grown Materials, Microscopy and Microanalysis Conference, Savannah, GA, August 1–5, 2004. P.K. Carpenter and J. Armstrong.

PRESENTATIONS (Continued)

81. Incoming Metrology of Segmented X-Ray Mandrels at MSFC, SPIE Conference on Astronomical Telescopes and Instrumentation, Glasgow, Scotland, 2004. M.V. Gubarev, S.L. O'Dell, T.J. Kester, D. Lehner, W. Jones, and M. Smithers.
82. Induced Transparency and Absorption in Coupled Microresonators, Institute of Electrical and Electronics Engineers—Lasers and Electro-Optics (IEEE–LEOS) Society Meeting, San Diego, CA, June 28–30, 2004. D.D. Smith and H. Chang.
83. Intricate Crystal Structure of Dihydrolipoamide Dehydrogenase (E3) With its Binding Protein: Multiple Copies, Dynamic and Static Disorders, American Crystallographic Association, Chicago, IL, July 17–22, 2004. A. Makal, Y.S. Hong, R. Potter, A.K. Vettaikkorumakankauv, L.G. Korotchkina, M.S. Patel, and E.M. Ciszak.
84. Kinetic Roughening Transition and Energetics of Tetragonal Lysozyme Crystal Growth, 10th International Conference on the Crystallization of Biological Macromolecules (ICCBM10), Beijing, China, June 5–8, 2004. S. Gorti, E.L. Forsythe, and M.L. Pusey.
85. Lab on a Chip Application Development for Exploration, Mars Astrobiology Science and Technology Workshop, Washington, DC, September 8–10, 2004. L. Monaco.
86. Lab-On-A-Chip Application Development (LOCAD) Bridging Technology Development, Conference on Micro-Nano-Technologies for Aerospace Applications (CANEUS), Monterey, CA, October 30–November 5, 2004. S.F. Spearing and A. Jenkins.
87. Land Use and Change, Mesoamerican Environmental Information System—NASA Monitoring and Visualization System (SIAM-SERVIR) Workshop, Panama City, Panama, August 17–20, 2004. D.E. Irwin.
88. Land Use and Change, Training Package Presentation to Mesoamerican Environmental Information System—NASA Monitoring and Visualization System (SIAM-SERVIR) Workshop, Panama City, Panama, July 10–17, 2004. D.E. Irwin.
89. Large- and Small-Scale Ring Current Electrodynamic Coupling, 30th Anniversary Yosemite Workshop on Inner Magnetosphere Interaction, Yosemite, CA, February 3–6, 2004. G.V. Khazanov.
90. Lessons for STEP from GP-B, Testing the Equivalence Principle on Ground and in Space, Pescara, Italy, September 20–24, 2004. J.J. Kolodziejczak.
91. Low Gravity Materials Science Research for Space Exploration, 4th International Conference on Solidification and Gravity, Miskolc, Hungary, September 6–9, 2004. R.G. Clinton, Jr., E.B. Semmes, R.A. Schlagheck, J.A. Bassler, M.J. Wargo, G.B. Sanders, and N.I. Marzwell.
92. Low Gravity Rapid Thermal Analysis of Glass, XX International Congress on Glass, Kyoto, Japan, September 26–October 1, 2004. D.S. Tucker and E.C. Ethridge.
93. Magnetic Control of Convection During Protein Crystallization, International Conference on Crystal Growth (ICCG–14), Grenoble, France, August 9–13, 2004. N. Ramachandran and F.W. Leslie.

PRESENTATIONS (Continued)

94. The Magnetic Field in the Outer Heliosphere, Arcetri Astrophysical Observatory, Florence, Italy, April 29, 2004. S.T. Suess.
95. The Magnetic Field in the Outer Heliosphere, UC IGPP 3rd Annual International Astrophysics Conference, Riverside, CA, February 8–13, 2004. S.T. Suess.
96. Magnetosphere-Ionosphere Coupling and Associated Ring Current Energization Processes, American Geophysical Union Monograph on Astrophysical Particle Acceleration in Geospace and Beyond, 2004. M.W. Liemohn and G.V. Khazanov.
97. Magnetospheric Magnetic Reconnection With Southward IMF by a 3D EMPM Simulation, Explosive Phenomena in Magnetized Plasma—New Development of Reconnection Research, Kyoto, Japan, March 17–19, 2004. K.I. Nishikawa, X.Y. Yan, D.S. Cai, and B. Lembege.
98. Main-Sequence CMEs as Magnetic Explosions: Compatibility With Observed Kinematics, 2004 Shine Workshop, Big Sky, MT, June 26–July 2, 2004. R.L. Moore, D.A. Falconer, and A.C. Sterling.
99. Materials Processing in Space: Model Experiments Aboard the *International Space Station*, Vanderbilt University, Nashville, TN, April 19, 2004. R.N. Grugel.
100. Meeting NASA’s Mission Through Commercial Partnerships, 42nd AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 4–8, 2004. M.E. Nall.
101. Metallic Hydrogen and Nano-Tube Magnets, Army’s National Ground Intelligence Center Workshop (MAD Scientist 04), Charlottesville, VA, November 3–5, 2004. J.W. Cole.
102. Microanalytical Efforts in Support of NASA’s Materials Science Programs, Microscopy and Microanalysis 2004 Conference, Savannah, GA, August 1–5, 2004. D.C. Gillies.
103. Microgravity Materials Research, Space Technology and Applications International Forum (STAIF), Albuquerque, NM, February 8–11, 2004. P.A. Curreri and L. Sibille.
104. Mirror Requirements for SAFIR, From Spitzer to Herschel and Beyond: The Future of Far-IR Space Astrophysics, Pasadena, CA, June 7–10, 2004. H.P. Stahl and W.S. Smith.
105. Modern Solar Mysteries, Vanderbilt University, Nashville, TN, April 8, 2004. D.H. Hathaway.
106. MODIS Data in AWIPS: A Precursor of NPOESS and GOES-R Capabilities, National Weather Association Annual Meeting, Portland, OR, October 16–21, 2004. G.J. Jedlovec, S.L. Haines, R.J. Suggs, T. Bradshaw, and J. Burks.
107. MSFC Nuclear Propulsion Materials Development, Tri-lateral Alliance Collaborative Technical Forum, Chattanooga, TN, May 4–6, 2004. J.R. Rogers and B. Cook.
108. Multiparametric Determination of Radiation Risk, NASA Cell Science Conference, Palo Alto, CA, February 26–28, 2004. R.C. Richmond.
109. Multivariate Statistical Inference of Lightning Occurrence, and Using Lightning Observations, International Lightning Detection Conference, Helsinki, Finland, June 7–9, 2004. D.J. Boccippio.

PRESENTATIONS (Continued)

110. The Mystery of Gamma-Ray Bursts, Rice University Space Exploration Series, Houston, TX, March 22, 2004. G.J. Fishman.
111. The NASA Materials Science Research Program—It's New Strategic Goals and Opportunities, 2nd International Symposium on Physical Sciences in Space, Held jointly with Spacebound 2004, Toronto, Canada, May 23–27, 2004. R.A. Schlagheck and E. Stagg.
112. NASA Short-Term Predication Research and Transition (SpoRT) Center: A Collaborative Model for Accelerating Research into Operations (The), 20th Conference on Weather Analysis and Forecasting, Seattle, WA, January 11–15, 2004. S.J. Goodman, W.M. Lapenta, G.J. Jedlovec, J.C. Dodge, and T. Bradshaw.
113. Near Real Time Derived Products From MODIS, 13th Conference on Satellite Meteorology and Oceanography, American Meteorological Society, Norfolk, VA, September 20–24, 2004. R.J. Suggs, G.J. Jedlovec, and S.L. Haines.
114. The Nonlinear Coupling of Alfven and Lower Hybrid Waves in Space Plasma, 2004 National Radio Science Meeting, Boulder, CO, January 4–8, 2004. G.V. Khazanov.
115. A Novel and New Ultra-Lightweight Reinforcement for Producing Low Mass Optical Systems, Mirror Technology Days 2004, Huntsville, AL, August 17–19, 2004. W. Kobell.
116. A Novel Metal-Ferroelectric-Semiconductor Field-Effect Transistor Memory Cell Design, 16th International Symposium on Integrated Ferroelectrics, Gyeongju, Korea, April 5–8, 2004. T.A. Phillips, F.D. Ho, and M. Bailey.
117. The Nucleation and Growth of Protein Crystals, Fall Seminar Series at the University of Toledo, Toledo, OH, November 4–6, 2004. M.L. Pusey.
118. Observations of Magnetars, The Electromagnetic Spectrum of Neutron Stars, Marmaris, Turkey, June 13–18, 2004. C. Kouveliotou.
119. Observations of Soft Gamma Repeaters, XXII Texas Symposium on Relativistic Astrophysics, Stanford, CA, December 13–17, 2004. C. Kouveliotou.
120. Observations of X-Ray Afterglows, Workshop on Gamma-Ray Bursts and Supernovae Connection, Seattle, WA, July 5–7, 2004. C. Kouveliotou.
121. Optimizing Crystal Volume for Neutron Diffraction Studies, Japanese Atomic Energy Research Institute (JAER), Tokai-mura, Japan, February 16–17, 2004. E.H. Snell.
122. The Origin and Evolution of Deep Plasmaspheric Notches, Inner Magnetosphere Interactions Workshop, Yosemite, CA, February 2–7, 2004. D.L. Gallagher, M.L. Adrian, and M.W. Liemohn.
123. Particle Acceleration, Magnetic Field Generation, and Emission in Relativistic Shocks, Workshop on Relativistic Plasma in Magnetic Field, Stanford, CA, August 16–18, 2004. K.I. Nishikawa, C. Heddal, P.E. Hardee, G.A. Richardson, R.D. Preece, H. Sol, and G.J. Fishman.

PRESENTATIONS (Continued)

124. Particle Acceleration, Magnetic Field Generation, and Emission in Relativistic Shocks, 8th Meeting of the American Astronomical Society High Energy Astrophysics Division, New Orleans, LA, September 8–11, 2004. K.I. Nishikawa, C. Hededal, P.E. Hardee, G.A. Richardson, R.D. Preece, H. Sol, and G.J. Fishman.
125. Particles Growing in Solution: Depletion Forces and Instability of Homogeneous Particle Distribution, International Symposium on Physical Sciences, Toronto, Canada, May 24–27, 2004. A.A. Chernov.
126. Performance of the Zero Degree Detector, Committee on Space Research (COSPAR) Assembly, Paris, France, July 18–25, 2004. M.J. Christl.
127. Photon Dynamics in Coherently Coupled Optical Resonators, Optical Society of America Frontiers in Optics Conference (OSA), Rochester, NY, October 10–14, 2004. D.D. Smith, H. Chang, and K.A. Fuller.
128. Plans for Extreme Energy Cosmic Ray Observations from Space, Seminar at Princeton University Physics Department, Princeton, NJ, March 11, 2004. J.H. Adams, Jr.
129. The Plasmoid Thruster Experiment (PTX), 46th Annual Meeting of the Division of Plasma Physics, Savannah, GA, November 15–19, 2004. A. Martin, R. Eskridge, P. Fimognari, S.J. Koelfen, and M. Lee.
130. Poco Graphite Inc. SuperSic 0.25m Mirror Cryogenic Test Result, Mirror Technology Days, Huntsville, AL, August 18–20, 2004, and posted on website optics.nasa.gov/tech_days. R. Eng, H.P. Stahl, W. Hogue, and J. Hadaway.
131. Poco Graphite Inc. SuperSic 0.25m. Mirror Cryogenic Test Result, Mirror Technology Days 2004, Huntsville, AL, August 17–19, 2004. R. Eng, H.P. Stahl, W. Hogue and J. Hadaway.
132. Pore Formation and Mobility Investigation (PFMI): Concept, Hardware Development, and Initial Analysis of Experiments, Invited talk to the European Space Agency, Paris, France, April 4–11, 2004. R.N. Grugel.
133. Pore Formation and Mobility Investigation: The Apparatus, Operations, Science Obtained, and Potential for Continued Usage (The), Institute of Electrical and Electronic Engineers—Lasers and Electro-Optics (IEEE–LEOS) Society Meeting, San Diego, CA, June 28–30, 2004. R.N. Grugel, P. Luz, G.A. Smith, R. Spivey, S. Sen, and A.V. Anilkumar.
134. Purification and Crystallization of Murine Myostatin a Negative Regulator of Muscle Mass, American Society for Biochemistry and Molecular Biology (ASBMB), Boston, MA, June 12–16, 2004. Y.S. Hong, D. Adamek, K. Bridge, C.C. Malone, R.B. Young, T.Y. Miller, and L.J. Karr.
135. Putting Us on the Map: Remote Sensing Investigation of the Ancient Maya Landscape, American Anthropological Association, San Francisco, CA, November 17–21, 2004. T.L. Sever and W. Saturno.
136. Quiet-Region Filament Eruptions, 204th Meeting of the American Astronomical Society, Denver, CO, May 30–June 3, 2004. D.P. Choudhary and R.L. Moore.

PRESENTATIONS (Continued)

137. Radiation Hazards and Countermeasures for Human Space Flight, 2004 NASA/Jet Propulsion Laboratory Workshop on Physics for Planetary Exploration, Solvang, CA, April 19–22, 2004. J.H. Adams.
138. Radiation Risk Assessment of the Individual Astronaut—A Complement to Radiation Interest at NIH, Invited talk to National Institute of Health (NIH), Rockville, MD, April 19, 2004. R.C. Richmond.
139. Recent Progress in Understanding the Sun’s Magnetic Dynamo, Vanderbilt University, Nashville, TN, April 8, 2004. D.H. Hathaway.
140. Ring Current Electrodynamic Coupling, 35th COSPAR Meeting, Paris, France, July 18–24, 2004. G.V. Khazanov.
141. The Role of Auroral Imaging in Understanding Ionosphere-Inner Magnetosphere Interactions, 30th Anniversary Yosemite Workshop Inner Magnetosphere Interactions, Yosemite, CA, February 3–6, 2004. J.F. Spann, Jr., G.V. Khazanov, and S.B. Mende.
142. Science Using an Electrostatic Levitation Furnace in the MUCAT Sector at the APS, High Energy Workshop, Argonne National Laboratory, Argonne, IL, August 9–10, 2004. A. Goldman, K.F. Kelton, and J.R. Rogers.
143. Seeing the Invisible With the IMAGE Mission, Seminar—Royal Observatory Belgium, Brussels, Belgium, May 5, 2004. D.L. Gallagher.
144. Semiconductor Crystal Growth in Static and Rotating Magnetic Fields, International Workshop on Materials Analysis and Processing in Magnetic Fields, Tallahassee, FL, March 17–19, 2004. M.P. Volz.
145. Simultaneous Chandra X-Ray, HST UV, and Ulysses Radio Observations of Jupiter’s Aurora, 2004 Meeting of the High Energy Astrophysics Divisions (HEAD) of the American Astronomical Society (AAS), New Orleans, LA, September 8–11, 2004. R.F. Elsner, A. Bhardwaj, J.H. Waite, Jr., N. Lugaz, T. Majeed, T. Cravens, G.R. Gladstone, P. Ford, D. Grodent, R. MacDowell, and M. Desch.
146. A Slow Streamer Blowout at the Sun and Ulysses, Ulysses Science Working Tem Meeting, Noordwijk, The Netherlands, April 22–23, 2004. S.T. Suess.
147. Solar Spicules: Prospects for Breakthroughs in Understanding With Solar-B, Committee on Space Research (COSPAR) Assembly, Paris, France, July 18–25, 2004. A.C. Sterling.
148. Solutal Convection Around Growing Protein Crystal and Diffusional Purification in Space, International Symposium on Physical Sciences, Toronto, Canada, May 24–27, 2004. A.A. Chernov and C.P. Lee.
149. Solution-Phase Processes of Macromolecular Crystallization, 10th International Conference on the Crystallization of Biological Macromolecules, Beijing, China, June 5–8, 2004. E.F. Minamitani and M.L. Pusey.

PRESENTATIONS (Continued)

150. Space Exploration Technologies Developed Through Existing and New Research Partnerships Initiatives, 55th International Astronautical Congress, Vancouver, Canada, October 4–8, 2004. M.E. Nall and J. Casas.
151. Space Weather, MSFC Educator Resource Center, Teacher Workshop, Space and Rocket Center, Huntsville, AL, January 27, 2004. D.L. Gallagher.
152. Spatially Varying Spectrally Thresholds for MODIS Cloud Detection, 13th Conference on Satellite Meteorology and Oceanography, American Meteorological Society, Norfolk, VA, September 20–24, 2004. S.L. Haines, G.J. Jedlovec, and F. LaFontaine.
153. Specific Impulse Definition for Ablative Laser Propulsion, Third International Symposium on Beamed Energy Propulsion, Troy, NY, October 11–13, 2004. D.A. Gregory and K.A. Herren.
154. Status of AMSR–E Science Investigator-Led Processing System (AMSR–E SLIPS), AMSR–E Meeting, Tokyo, Japan, April 16–21, 2004. H.M. Goodman.
155. Status of the Ablative Laser Propulsion Studies, 15th Advanced Space Propulsion Workshop, Pasadena, CA, June 15–17, 2004. K.A. Herren, J. Lin, T. Cohen, A.V. Pakhomov, and M. Thompson.
156. Steps in Solution Growth: Revised Gibbs-Thomson Law, Turbulence and Morphological Stability, International Conference on Crystal Growth (ICCG–14), Grenoble, France, August 9–13, 2004. A.A. Chernov, L.N. Rashkovich, and P.G. Vekilov.
157. Strategic Research Directions in Microgravity Materials Science, 42nd AIAA Aerospace Sciences Meeting, Reno, NV, January 5–8, 2004. R.G. Clinton, Jr., E.B. Semmes, B. Cook, M.J. Wargo, and N.I. Marzwell.
158. Strategic Research Directions in Microgravity Materials Science, Transformational Space Launch and Operations Technologies Conference, Washington, DC, May 24–26, 2004. R.G. Clinton, Jr.
159. Structural Basis for the Catalytic Activity of Human Serine/Threonine Protein Phosphatase Type 5 (PP5), Federation of American Societies for Experimental Biology (FASEB), Snowmass Village, CO, July 17–22, 2004. M.R. Swingle, E.M. Ciszak, and R. Honkanen.
160. Synthesis of Sol-Gel Precursors for Ceramics from Lunar and Martian Soil Simulants, Space Resource Roundtable Conference, Golden, CO, November 1–3, 2004. L. Sibille, J.A. Gavira-Gallardo, and D. Hourlier-Bahloul.
161. Te- and Zn-doped InSb Crystals Grown in Microgravity, International Conference on Crystal Growth XIV, Grenoble, France, August 9–13, 2004. A.G. Ostrogorsky, C. Marin, M.P. Volz, W.A. Bonner, and T. Duffar.
162. Testing Fractal Methods on Observed and Simulated Solar Magnetograms, American Astronomical Society, Atlanta, GA, January 4–8, 2004. M. Adams, D.A. Falconer, J.K. Lee, and C. Jones.

PRESENTATIONS (Continued)

163. Thermophysical Properties of Selected II–VI Semiconducting Melts, 4th International Conference on Solidification and Gravity, Miskolc, Hungary, September 6–10, 2004. C. Li, C.-H. Su, S.L. Lehoczky, R.N. Scripa, H. Ban, and B. Lin.
164. The Thiamin-Pyrophosphate-Motif, Keystone Symposium, Snowbird, UT, April 13–15, 2004. E.M. Ciszak and P. Dominiak.
165. Three-Dimensional High Resolution Optical/X-Ray Stereoscopic Tracking Velocimetry, American Society of Mechanical Engineers (ASME), International Mechanical Engineering Congress, Anaheim, CA, November 13–20, 2004. S.S. Cha and N. Ramachandran.
166. Total Lightning Activity as Observed From Space, Darwin Lightning Observatory Workshop, Osaka, Japan, March 7–10, 2004. H.J. Christian.
167. Total Lightning Activity as Observed From Space, Meeting With National Space Projects Office on Lightning Mapper, Taipei, Taiwan, March 4–5, 2004. H.J. Christian.
168. Transition from Research to Operations: Assessing Value of Experimental Forecast Products Within the NWSFO Environment, 20th Conference on Weather Analysis and Forecasting, Seattle, WA, January 11–15, 2004. W.M. Lapenta, R. Wohlman, T. Bradshaw, J. Burks, G.J. Jedlovec, S.J. Goodman, C. Darden, and P.J. Meyer.
169. Triggering of the Two X-Class Flares of 28 and 29 October 2003, 204th Meeting of the American Astronomical Society, Denver, CO, May 30–June 3, 2004. D.P. Choudhary, R.L. Moore, D.A. Falconer, S. Pojoga, T.-S. Huang, S. Krucker, and W. Uddin.
170. Triphasic Tooling With Small Oriented Diamonds for Turning and Smoothing Lightweight Mirrors, Mirror Technology Days 2004, Huntsville, AL, August 17–19, 2004. O.A. Voronov, G.S. Tompa, B.H. Kear, and V. Veress.
171. Tropical Cyclone Precipitation Types and Electrical Field Information Observed by High Altitude Aircraft Instrumentation, 26th AMS Conference on Hurricanes and Tropical Meteorology, Miami, FL, May 3–7, 2004. R.E. Hood, R.J. Blakeslee, D. Cecil, F. LaFontaine, G.M. Heymsfield and F. Marks.
172. Tropical Diabatic Heating and the Role of Convective Processes as Represented in Several Contemporary Climate Models, 84th AMS Annual Meeting, Seattle, WA, January 11–15, 2004. F.R. Robertson, J. Roads, R. Oglesby, and S. Marshall.
173. Two-Pulsed Technique for Ablative Laser Propulsion: Force Measurement in Vacuum, Third International Symposium on Beamed Energy Propulsion, Troy, NY, October 11–13, 2004. K.A. Herren, T. Cohen, J. Lin, and A.V. Pakhomov.
174. Unresolved Issues with Inner Magnetosphere-Ionosphere Coupling, Outer Radiation Belt Injection, Transport, Acceleration and Loss Satellite (ORBITALS) Workshop, Banff, Canada, September 23–24, 2004. D.L. Gallagher and G.V. Khazanov.
175. Use of EOS Data in a WIPS for Weather Forecasting, 20th Conference on Weather Analysis and Forecasting, Seattle, WA, January 11–15, 2004. G.J. Jedlovec, S.L. Haines, R.J. Suggs, T. Bradshaw, C. Darden, and J. Burks.

PRESENTATIONS (Continued)

176. Use of SolidEdge as an Engineering Tool to Support NASA Projects (The), Solid Edge User Summit, Orlando, FL, June 2-4, 2004. G. Thornton
177. What the Long-Term Sunspot Record Tells Us About Space Climate, First International Symposium on Space Weather, Oulu, Finland, June 20-23, 2004. D.H. Hathaway.
178. When Earth Songs Filled the Void of Space, Birmingham Astronomical Society, Birmingham, AL, January 20, 2004. D.L. Gallagher.
179. X-MIME: An Imaging X-Ray Spectrometer for Detailed Study of Jupiter's Icy Moons and the Planet's X-Ray Aurora, 36th Annual DPS Meeting, Louisville, KY, November 8-12, 2004. R.F. Elsner, B.D. Ramsey, J.H. Waite, Jr., P. Rehak, R.E. Johnson, J.F. Cooper, and D.A. Swartz.
180. X-Ray and EUV Observations of CME Eruption Onset, International Astronomical Meeting Symposium 226, Coronal and Stellar Mass Ejections, Beijing, China, September 13-17, 2004. A.C. Sterling.
181. X-Ray Microscopic Characterization of Protein Crystals, 10th International Conference on the Crystallization of Biological Macromolecules (ICCBM), Beijing, China, June 5-8, 2004. Z.W. Hu, A.M. Holmes, B.R. Thomas, A.A. Chernov, Y.S. Chu, and B. Lai.
182. X-Ray Polarimetry Explorer (XPE) (The), X-Ray Polarimetry Conference, Stanford, CA, February 9-11, 2004. B.D. Ramsey.
183. X-Ray Scattering Polarimeters: An Overview, X-Ray Polarimetry Workshop, Stanford, CA, February 9-11, 2004. M.C. Weisskopf, R.F. Elsner, B.D. Ramsey, and S.L. O'Dell.

SCIENCE AND TECHNOLOGY DIRECTORATE AUTHOR INDEX

NASA REPORTS AND OTHER PUBLICATIONS

Technical Memorandums

Haines, S.L.	1
Jedlovec, G.J.	1
Suggs, R.J.	1
Summers, F.G.	1

Technical Publications

Delamere, P.	1
Hathaway, D.H.	1
Kabin, K.	1
Khazanov, G.V.	1
Krivorutsky, E.	1
Linde, T.J.	1
Wilson, R.M.	1

Conference Publications

Dutton, K.	1
Martinez, N.G.	1
Smith, D.	1
Stone, N.H.	1
Wright, K.H.	1

OPEN LITERATURE

Refereed Journal Articles

Abbas, M.M.	5, 6
Achari, A.	3
Achterberg, R.K.	6
Adams, J.H.	4, 8
Adhikari, M.	2
Adkins, W.	6
Adrian, M.L.	5

Ahn, H.S.	8
Andersen, M.I.	7, 8
Andre, M.	3
Anfimov, D.S.	2
Antipin, M.U.	9
Antonelli, L.A.	7
Arzoumanian, Z.	6
Austin, R.A.	8
Avanov, L.A.	2, 5, 6
Bailey, J.	6
Bailey, M.	7
Baird, J.K.	9
Ban, H.	9
Barlow, D.A.	9
Barret, D.	2
Bashindzhagyan, G.L.	8
Bateman, M.G.	7
Batkov, K.E.	8
Becker, W.	2, 6, 7, 8
Bell, T.F.	10
Bellamy, H.	4, 5
Bemporad, A.	4, 8
Benson, R.F.	10
Bhardwaj, A.	8
Bismayer, U.	5
Bjoraker, G.	6
Blakeslee, R.J.	6
Blandford, R.	2
Blehm, Z.	7
Boccippio, D.J.	7
Bonamente, M.	5, 6
Borgstahl, G.	4, 5
Borodkova, N.L.	2
Bouchet, P.	7
Boyd, R.W.	3
Bradshaw, R.C.	9
Branduardi-Raymont, G.	4, 8
Briggs, M.S.	2
Brinkworth, C.	7
Brittnacher, M.J.	2
Brow, R.K.	3

Buechler, D.E.	3, 7	Ehret, C.F.	7
Camilo, F.	6	Elliott, H.A.	4
Cammarata, M.	3	Ellison, S.L.	5
Canfield, R.C.	7	Elsner, R.F.	2, 4, 6, 8
Canu, P.	3	Estes, M.G., Jr.	9
Cardelino, B.H.	9	Fazely, A.R.	8
Carlstrom, J.E.	6	Filip, A.T.	2
Carpenter, D.L.	10	Finger, M.H.	2, 6
Castro-Tirado, A.J.	7	Fishman, G.J.	2
Castro Ceron, J.M.	7	Flanagan, K.	2
Catalina, A.V.	5	Flasar, F.M.	6
Cecil, D.	7	Fok, M.-C.	6, 9
Chakrabarty, D.	2	Forsythe, E.	5
Chang, H.	2, 3	Frigo, S.P.	7
Chang, J.	8	Fruchter, A.	7
Chang, S.-W.	3	Fuller, K.A.	3
Chen, F.	4, 6	Fung, S.F.	7
Chernov, A.A.	3, 7, 8	Fynbo, J.P.U.	5, 7, 8
Chernyshova, M.	2	Gallagher, D.L.	3, 5, 7, 10
Chick, J.	5	Gamayunov, K.V.	6
Christian, H.J.	6	Ganel, O.	8
Christl, M.	8	Gangopadhyay, A.K.	3, 9
Chu, Y.S.	3	Gary, G.A.	4
Chua, D.	2	Gavira, J.A.	5
Ciszak, E.M.	5, 9	Gavriil, F.	2
Clark, R.	4	Geppert, U.	3
Colafrancesco, S.	6	Germany, G.A.	2
Connaughton, V.	2	Ghisellini, G.	7
Conrath, B.J.	6	Ghosh, K.K.	7, 8, 9
Courvoisier, T.	7	Gierlotka, S.	4, 5
Covino, S.	7	Giommi, P.	2
Craven, P.D.	5, 7	Gladstone, G.R.	4, 8
Cravens, T.E.	8	Gogus, E.	6
Crosson, W.L.	5	Goodman, H.M.	7
Cruise, J.F.	3	Goodman, S.J.	3, 6
Cuntz, M.	8	Gorosabel, J.	7, 8
Darrouzet, F.	3	Gorti, S.	5
Day, D.E.	9	Grasza, K.	2
Décréau, P.M.	3	Grav, T.	8
DeKeyser, J.	3	Green, J.L.	7
de Jonge, W.J.	2	Greenwald, R.A.	3
de Ugarte Postigo, A.	8	Greiner, J.	3, 7
Edmonds, T.	3	Grindlay, J.E.	2

Grugel, R.N.	3	Kaukler, W.	5
Grzanka, E.	4, 5	Kelton, K.F.	3, 9
Guenther, E.	7	Khazanov, G.V.	6, 7, 9
Guetter, H.H.	3	Kim, C.W.	3
Guillory, A.R.	7	Kim, K.C.	8
Gunasingha, R.M.	8	King, A.	7
Guzik, T.G.	8	Kippen, R.M.	2
Hagyard, M.J.	7	Kissel, D.E.	4, 6
Hall, J.	6	Klose, S.	3, 7
Hansen, M.H.	8	Ko, Y.	4
Hanson, B.	2	Koopmans, B.	2
Harmon, B.A.	2	Korotchikina, L.G.	5
Hartmann, D.H.	3, 7	Koshak, W.J.	6
Hatch, L.U.	3	Kouveliotou, C.	2, 3, 5, 6, 7, 8
Hathaway, D.H.	4, 9	Kouznetsov, E.N.	8
Henden, A.A.	3, 5, 7	Kowalczyk, L.	2
Henze, W.	2	Krider, E.P.	7
Hernquist, L.	2	Krivorutsky, E.N.	6
Heyl, J.	2	Kunde, V.G.	6
Hjorth, J.	5, 7, 8	Kundrot, C.E.	9
Ho, F.D.	4, 7	Lai, B.	3
Hong, Y.	9	LaRoque, S.J.	6
Honkanen, R.	9	Laymon, C.A.	5
Hood, R.E.	7	Lazzati, D.	7
Horwitz, J.L.	7	LeClair, A.	5, 6
Howell, L.W.	6, 8	Ledoux, C.	5
Hu, Z.W.	3	Lee, G.W.	3, 9
Huang, X.	7	Le Guirriec, E.	3
Hudec, R.	7	Lehoczyk, S.L.	9
Hurley, K.	7	Lemaire, J.F.	3
Hyers, R.W.	3, 9	Leslie, F.W.	9
Inan, U.S.	10	Levan, A.	2
Isbert, J.	8	Li, C.	9
Jakobsson, P.	8	Liemohn, M.W.	6, 9
Jelinek, M.	7	Limaye, A.S.	2, 3, 5
Jennings, D.J.	6	Lin, B.	9
Jensen, B.L.	8	Lin, D.	5
Jessner, A.	8	Lindberg, U.	5
Joy, M.K.	6	Lindsay, K.	7
Kakar, R.	7	Litvak, M.L.	2
Kanbach, G.	6	Liu, Z.-J.	5
Kaper, L.	7	Lorimer, D.	6
Kaspi, V.	2	Lovelace, J.	4, 5

Luginbuhl, C.B.	3	Okumura, Y.	3
Luvall, J.C.	4, 6	Oosterbroek, T.	6
Mach, D.	7	Orton, G.	6
MacLeod, T.C.	4	Owen, T.	6
Maiorano, E.	7	Ozel, F.	7
Malesani, D.	7	Paciesas, W.S.	2
Mannucci, F.	7	Paerels, F.	2
Manvalan, P.	3	Palazzi, E.	7
Markwardt, C.B.	6	Palosz, B.	4, 5
Marshall, H.	2	Palosz, W.	2, 4, 5, 8
Martin, N.	2	Panasyuk, M.I.	8
Masetti, N.	7	Panov, A.D.	8
Masi, G.	5	Parks, G.K.	2
Mask, P.L.	4, 8	Patel, M.S.	5
Masson, A.	3	Patel, S.K.	2, 6, 7
Mazuruk, K.	3, 6, 8	Paudel, K.P.	2, 3
McCaul, E.W., Jr.	3, 7	Pedersen, H.	8
McClymer, J.P.	4	Pedersen, K.	7, 8
McCollough, M.L.	2	Petersen, W.A.	7
McNulty, I.	7	Peterson, B.	2
Meegan, C.A.	2	Pevtsov, A.A.	7
Mende, S.B.	3	Phillips, T.A.	7
Michelsen, R.	8	Pian, E.	2, 7
Mitrofanov, I.G.	2	Pielaszek, R.	5
Moeller, P.	5	Poletto, G.	4, 8
Moore, C.E.	9	Potter, R.	9
Moore, R.L.	4, 6	Praissman, J.	5
Moore, T.E.	5, 7	Preece, R.D.	2
Motakef, S.	2, 3	Price, M.W.	2
Musleh, F.	3	Pusey, M.L.	5
Nandy, D.	4	Quattrochi, D.A.	9
Narayan, K.	5	Ramachandran, N.	9
Nerney, S.	4	Ramirez-Ruiz, E.	2, 8
Nesterov, V.N.	9	Ramsay, G.	4
Nesterov, V.V.	9	Ramsey, B.D.	8
Nevalainen, J.	6	Ramsey, G.	8
Newell, P.T.	3	Ranasinghe, K.S.	9
Newman, T.S.	6, 9	Rathz, T.J.	3, 9
Ng, J.D.	5	Rau, A.	7
Nixon, C.A.	6	Rauch, J.L.	3
Njoku, E.G.	5	Ray, C.S.	3, 9
Nysewander, M.	7	Reichart, D.E.	7
O'Dell, S.L.	2, 6	Reichmann, E.J.	4

Reimer, O.	6	Snell, E.H.	4, 5
Reinisch, B.W.	7, 10	Soares, A.S.	4
Reis, S.T.	3	Sokolskaya, N.V.	8
Rhoads, J.	7	Solakiewicz, R.J.	6
Rich, F.J.	7	Song, P.	7
Richmond, R.C.	7	Soria, R.	4, 8
Rickman, D.L.	4, 6, 8	Spann, J.F., Jr.	2, 3, 5
Ridley, A.J.	6, 9	Stasiak, E.	9
Ries, C.	7	Stecklum, B.	3, 7
Robinson, D.S.	3	Stefanescu, D.M.	5
Rodriguez, P.	4, 8	Steinberg, J.T.	3
Roeber, D.F.	3	Stel'makh, S.	4, 5
Rogers, J.R.	3, 9	Sterling, A.C.	4
Rol, E.	5, 7	Stewart, M.F.	7
Romani, P.N.	6	Story, T.	2
Rosenberger, A.T.	3	Su, C.-H.	9
Rupen, M.	6	Suess, S.T.	3, 4, 6, 8
Sahi, M.	2	Suleimanov, V.	8
Sakurai, T.	3, 6	Sullivan, D.G.	4
Sandel, B.R.	7	Swagten, H.J.	2
Sanin, A.B.	2	Swank, J.H.	6
Santolik, O.	3	Swartz, D.A.	2, 6, 7, 9
Sauvaud, J.A.	2	Sweet, R.M.	4
Schmidt, W.K.H.	8	Swingle, M.R.	9
Schutt, C.	5	Szcerbakow, A.	2
Schwadron, N.	4	Szofran, F.R.	2
Scott, D.L.	3	Takai, T.	3
Scripa, R.N.	2, 9	Tankosic, D.	5
Sedgemore, F.	3	Tanvir, N.R.	8
Segre, P.N.	4	Tempei, W.	5
Sen, S.	5	Tennant, A.F.	2, 6, 7, 8, 9
Seo, E.S.	8	Thomas, B.R.	3
Shaw, J.N.	4, 8	Thompson, A.M.	8
Shrader, C.R.	2	Thompson, C.	2
Singh, N.	7	Tielens, A.G.G.M.	5
Sipatov, A.Y.	2	Timofeeva, T.V.	9
Slane, P.	7	Touchton, J.T.	8
Smail, I.	8	Trotignon, J.G.	3
Smirnov, N.	2	Ubertini, P.	7
Smirnov, V.N.	5	Vaisberg, O.L.	2, 5
Smith, C.J.	2	Van den Heuvel, E.	8
Smith, D.D.	2, 3	Van Der Klis, M.	6, 7
Smith, J.E.	7	Van Dyke Dixon, W.	5

Vasyliunas, V.M.	7	Contributions to Books, Conference Proceedings, Etc.	
Volz, M.P.	6, 8	Abbas, M.M.	14
Vrba, F.J.	3	Abyzov, S.S.	17
Vreeswijk, P.M.	5, 8	Adams, M.L.	14, 15
Wach, S.	7	Altino, K.M.	11
Wachter, S.	7	Anilkumar, A.V.	11, 12
Waite, J.H., Jr.	4, 8	Apple, J.A.	13, 15
Walker, J.S.	8	Ashcroft, P.	16
Wang, B.-C.	5	Astafieva, M.M.	13, 14
Wang, H.	6	Atkinson, P.K.	11
Wang, J.Z.	8	Bachmann, K.J.	10
Watson, D.	8	Bailey, J.	16
Weaver, A.R.	6	Baker, M.	17
Wefel, J.P.	8	Balasubramaniam, K.S.	10
Wei, P.F.	9	Balasubramanian, S.	13
Weidinger, M.	8	Ban, H.	15
Weingartner, J.	5	Basso, S.	12
Weisskopf, M.C.	2, 6, 7, 8	Beaumont, B.	16
Werner, S.	5	Beckermann, C.	12
Wersinger, J.M.	4	Ben, H.	17
West, E.A.	5	Benford, D.J.	15
West, L.T.	4, 6	Biazar, A.	17
Wijers, R.A.M.J.	2, 5, 8	Blackwell, K.	10
Wilson, C.A.	2	Blakeslee, R.J.	11, 16
Wilson, R.M.	4, 9	Bowdle, D.A.	17
Winkler, C.	7	Brow, R.K.	15
Witherow, W.K.	5	Bruni, R.J.	12
Woods, P.M.	2, 6, 7	Buechler, D.	13, 16
Woosley, S.E.	2	Burris, J.	17
Wu, J.	8	Byberg, A.	15
Wu, K.	7, 9	Cardelino, B.H.	10
Yamauchi, Y.	3, 6	Cardelino, C.A.	10
Yesilyurt, S.	3	Carpenter, J.R.	11, 13
Zatsepin, V.I.	8	Carrier, M.	10
Zeh, A.	7	Cecil, D.	11
Zeng, W.	7	Chernov, A.A.	11, 16
Zhang, S.N.	8	Chou, S.	16
Zhao, Y.	4	Choudhary, D.P.	10
Zhu, S.	9	Christian, H.J.	13
Zurbuchen, T.	4	Citterio, O.	12
		Cobb, S.D.	12

Coimbra, C.	12	Hardee, P.E.	15
Conover, H.	16	Hathaway, D.H.	13
Content, D.	17	Hawkins, L.	16
Conway, D.	16	Heymsfield, G.	11
Costen, J.	15	Hitchcock, A.	11
Craven, P.D.	14	Hogue, W.D.	11, 13
Davis, J.M.	15	Holloway, T.	12
Day, D.E.	11	Hood, R.E.	11
Dembek, S.	17	Hoover, R.B.	10, 13, 14, 15, 16, 17
Detkova, E.N.	16	Huang, X.	12
De Yoreo, J.J.	16	Imura, S.	17
Dietz, N.	10	Ivanov, M.V.	17
Elsner, R.F.	10	Jacoby, M.T.	13
Emerson, C.W.	16	Janelle, D.G.	16
Eng, R.	11, 13	Jedlovec, G.J.	10, 13, 14, 16, 17
Engelhaupt, D.	10, 12	Jerman, G.	15
Ethridge, E.C.	12	Johnson, S.	17
Falconer, D.A.	13	Jones, S.	16
Feinberg, L.D.	14	Jones, W.	17
Fishman, G.J.	15	Joy, M.K.	17
Freeman, M.	17	Kaper, L.	16
Fuller, K.A.	17	Kegley, J.R.	11, 13
Fuss, T.	11	Kester, T.	12
Gallagher, D.L.	12, 14, 15	Keys, A.S.	13
Gary, G.A.	11, 13, 15	Kim, C.W.	15
Gatlin, P.	16	Kimball, S.	10
Ghigo, M.	12	Kitchens, L.	12
Gillani, N.	17	Knupp, K.R.	11, 17
Glenn, P.	17	Koczor, R.	15
Goodman, H.M.	16	Kolodziejczak, J.J.	10
Goodman, S.J.	11, 13, 14, 16	Kual, R.	14
Goodman, W.A.	13	L'Esperance, D.	12
Gorenstein, P.	12	LaFontaine, F.J.	11
Grant, C.	11	Lam, N.	16
Grant, J.	14	Lapenta, W.M.	10, 14, 16, 17
Green, J.L.	12	Laws, K.	13
Grugel, R.N.	11, 12	Laymon, C.A.	12
Gubarev, M.V.	10, 12, 13, 15, 17	LeClair, A.	14
Hadaway, J.B.	11, 13	Lee, C.P.	11, 12
Haight, H.J.	13	Lee, J.K.	11
Haines, S.L.	14, 17	Lehoczy, S.L.	12, 15, 17
Hair, J.	17	Leisawitz, D.T.	15
Hansen, K.	16	Leshner, C.E.	11

Li, C.	15, 17	Ramachandran, N.	12
Li, H.	11	Ramsey, B.D.	10, 12, 13, 15, 17
Lin, B.	15, 17	Rangel, R.	12
Lobl, E.	16	Rappaz, M.	12
Lu, H.-L.	14	Rashkovich, L.	16
Luvall, J.C.	12	Ray, C.S.	11, 12, 15
Mach, D.M.	11	Reese, G.	15
Mackaro, S.	10, 17	Regner, K.	16
Marshall, H.	11	Reily, J.C.	13
Martin, G.	10, 12	Reinish, B.W.	12
Mazzoleni, F.	12	Reis, S.T.	15
McCall, S.D.	10	Richardson, G.A.	15
McCarty, W.	16	Robertson, F.R.	14
McCaul, E.W., Jr.	16	Rogers, J.R.	12
McCracken, J.E.	13, 17	Rol, E.	16
McNider, R.T.	10, 17	Romaine, S.	12
Mecikalski, J.R.	16	Rowell, G.H.	15
Metois, J.-J.	11	Rozanov, A.Y.	10, 13, 14, 15
Mitskevich, I.N.	17	Rudolph, P.	11
Moore, C.E.	10	Russell, J.K.	14
Moore, R.L.	13, 16	Saha, T.	17
Muller, G.	11	Scripa, R.N.	15, 17
Myer, G.	14	Sharma, A.	14
Naganuma, T.	17	Siler, R.D.	13
Nanan, G.	17	Smith, G.A.	12
Newchurch, M.J.	17	Sol, H.	15
Newman, T.S.	11	Song, P.	12
Nishikawa, K.	15	Spann, J.F., Jr.	14
Noble, M.	15	Speegle, C.O.	10, 12
Nsume, P.	12	Stahl, H.P.	11, 13, 14, 15
O'Dell, S.L.	10, 11, 12, 17	Stewart, J.	17
Owens, S.	17	Storrie-Lombardi, M.C.	13
Pareschi, G.	12	Strachan, D.M.	11
Petre, R.	17	Su, C.-H.	15, 17
Pettigrew, P.J.	12	Suematsu, Y.	10
Pikuta, E.V.	10, 13, 15, 16	Suess, S.T.	17
Plucinsky, P.	11	Suggs, R.J.	10, 14, 17
Podgorski, W.	17	Swartz, D.	17
Poglazova, M.N.	17	Tankosic, D.	14
Poletto, G.	17	Taylor, S.	14
Porter, J.G.	15	Tennant, A.F.	11
Preece, R.D.	15	Texter, S.	14
Quattrochi, D.A.	11, 12, 16	Trivedi, R.	12

Trolinger, J.D.	12	Coe, M.J.	19
Tucker, D.S.	12	Coffey, V.N.	19
Tucker, J.	13	Connaughton, V.	19
van den Heuvel, E.P.J.	16	Craven, P.D.	18, 19, 20
Vekilov, P.G.	16	Cravens, T.E.	18
Vickers-Rich, P.	14	DeMagistre, R.M.	18
Wallis, M.K.	10	Denton, M.H.	18
Warf, B.	16	Deverapalli, C.	20
Weber, R.	11	Elander, V.	20
Weingartner, J.	14	Elsner, R.F.	18
Weisskopf, M.C.	10, 11, 13, 16, 17	Finger, M.H.	19
Wentz, F.	16	Ford, P.	18
West, E.A.	14, 15	Fox, N.J.	19
Whitt, A.	14	Gallagher, D.L.	18, 19, 20
Wickramasinghe, N.C.	10	Gamayunov, K.V.	20
Wijers, R.A.M.J.	16	Germany, G.A.	18, 19, 20
Wilde, A.	14	Gladstone, G.R.	18
Witherow, W.K.	12, 14	Goldberg, R.	19
Work, G.	12	Greiner, J.C.	19
Wright, E.R.	13	Gribben, S.P.	19
Yamauchō, Y.	16	Grodent, D.	18
Yue, Y.	11	Hamilton, D.C.	18
Zhang, W.	17	Hathaway, D.H.	20
Zhu, S.	15	Henderson, M.G.	18
Zirnstein, G.	17	Heymsfield, G.	18
Zou, X.	10	Hobson, L.	19

Published Abstracts

Abbas, M.M.	19	Hoffman, R.A.	19
Adrian, M.L.	18, 19	Hood, R.E.	18
Avanov, L.A.	19	Hung, C.-C.	20
Barnes, R.J.	19	Jahn, J.M.	18
Beisser, K.B.	19	Khazanov, G.V.	19, 20
Bhardwaj, A.	18	Koshak, W.J.	18, 20
Blakeslee, R.J.	18	Kozyra, J.U.	18
Boccippio, D.J.	19	Krivorutsky, E.N.	20
Brandt, P.C.	18	LaFontaine, F.J.	18
Branduardi-Raymont, G.	18	LeClair, A.	19
Briggs, M.S.	19	Liemohn, M.W.	18, 19
Cecil, D.	18	Lugaz, N.	18
Chandler, M.O.	19	Mach, D.M.	18
Choudhary, D.P.	20	Maddox, W.	18
		Majeed, T.	18
		Manietti, J.D.	19
		Meegan, C.A.	19

Miller, J.	19	Balasubramaniam, K.S.	21
Mitchell, D.G.	18	Balasubramanian, S.	25
Mobilia, J.	19	Ban, H.	33
Moore, T.E.	19, 20	Barber, W.C.	26
Newell, P.	19	Barczy, P.	23
Perrin, D.J.	19	Barghouty, N.	26
Phanord, D.	20	Bassler, J.A.	27
Poletto, G.	18	Beecher, E.A.	25
Ramsay, G.	18	Bennett, H.E.	25
Reig, P.	19	Bhardwaj, A.	22, 25, 31
Ridley, A.J.	18	Bhattacharya, M.	26
Rodriquez, P.	18	Blakeslee, R.J.	33
Roelof, E.C.	18	Boccippio, D.J.	28
Russell, C.T.	19	Bonner, W.A.	32
Schultz, M.	19	Bors, K.	21
Scudder, J.D.	19	Bradshaw, R.C.	23
Shelton, R.B.	18	Bradshaw, T.	23, 28, 29, 33
Sidman, E.D.	19	Branduardi-Raymont, G.	22
Sigwarth, J.B.	19	Bridge, K.	30
Singh, N.	19, 20	Brubaker, N.G.	22
Smirnov, V.N.	19	Burks, J.	23, 28, 33
Soria, R.	18	Cai, D.S.	28
Spann, J.F., Jr.	18, 19, 20	Cameron, R.A.	25
Suess, S.T.	18	Carpenter, P.K.	22, 26
Tankosic, D.	19	Casas, J.	21, 32
Waite, J.H., Jr.	18	Catalina, A.V.	21, 24
Weisskopf, M.C.	19	Cecil, D.	33
West, E.A.	19	Cha, S.S.	33
Wilson, C.A.	19	Chaney, D.M.	25
		Chang, H.	25, 27, 30
		Chang, S.-W.	25
		Chernov, A.A.	22, 23, 24, 30, 31, 32, 34
		Choudhary, D.P.	21, 24, 30, 33
		Christian, H.J.	26, 33
		Christl, M.J.	30
		Chu, Y.S.	24, 34
		Ciszak, E.M.	27, 32, 33
		Clinton, R.G., Jr.	27, 32
		Cobb, S.D.	21, 23
		Cohen, T.	32, 33
		Cole, J.W.	28
		Cook, B.	28, 32
		Cooper, J.F.	34

PRESENTATIONS

Adamek, D.	30
Adams, J.H.	26, 31
Adams, M.	32
Adams, J.H., Jr.	30
Adrian, M.L.	29
Aldcroft, T.	25
Anilkumar, A.V.	24, 30
Armstrong, J.	21, 26
Ashley, P.R.	25
Bailey, M.	29

Craig, W.W.	26	Grodent, D.	31
Cravens, T.	31	Grugel, R.N.	24, 28, 30
Cravens, T.E.	22, 25	Grzanka, E.	24, 26
Crow, R.W.	25	Gubarev, M.V.	21, 27
Cruz, A.	21	Hadaway, J.	23, 30
Curreri, P.A.	28	Haines, S.L.	21, 28, 29, 32, 33
Darden, C.	23, 33	Hardee, P.E.	29, 30
Day, D.E.	23	Hasegawa, B.H.	26
Dembek, S.	23	Hathaway, D.H.	26, 28, 31, 34
Desch, M.	31	Hededal, C.	29, 30
Dhindaw, B.K.	24	Herren, K.A.	32, 33
Dodge, J.C.	29	Heymsfield, G.M.	33
Dominiak, P.	33	Ho, F.D.	25, 29
Dudley, M.	23	Hogue, W.	23, 30
Duffar, T.	32	Holmes, A.M.	34
Dumas, P.	26	Hong, Y.S.	27, 30
Elsner, R.F.	21, 22, 25, 31, 34	Hood, R.E.	24, 33
Eng, R.	23, 30	Hourlier-Bahloul, D.	32
Engel, H.P.	22	Hu, Z.W.	24, 34
Engelhaupt, D.	21, 24	Huang, T.-S.	33
Eskridge, R.	30	Hulguin, R.	24
Ethridge, E.C.	27	Hyers, R.W.	23
Falconer, D.A.	25, 28, 32, 33	Irwin, D.E.	27
Fimognari, P.	30	Jedlovec, G.J.	21, 22, 28, 29, 32, 33
Fishman, G.J.	21, 29, 30	Jenkins, A.	27
Foellmi, C.	25	Johnson, R.E.	34
Ford, P.	22, 31	Jones, A.	26
Forsythe, E.L.	25, 27	Jones, C.	32
Fuller, K.A.	30	Jones, P.R.	21
Fuss, T.	23	Jones, W.	27
Gallagher, D.L.	23, 29, 31, 32, 33, 34	Judge, R.A.	23
Gandhi, P.	25	Kar, S.K.	24
Gangopadhyay, A.K.	23	Karr, L.J.	30
Gary, G.A.	21, 25	Kear, B.H.	33
Gavira-Gallardo, J.A.	32	Kelton, K.F.	23, 31
Gierlotka, S.	26	Kephart, R.	23
Gillies, D.C.	22, 28	Kester, T.J.	27
Gladstone, G.R.	22, 25, 31	Keys, A.S.	25
Goldman, A.	31	Khazanov, G.V.	23, 27, 28, 29, 31, 33
Goodman, H.M.	32	Knuteson, D.	23
Goodman, S.J.	29, 33	Kobell, W.	29
Gorti, S.	27	Koelfen, S.J.	30
Gregory, D.A.	32	Kolodziejczak, J.J.	21, 27

Korotchkina, L.G.	27	Mitchell, B.K.	26
Kouveliotou, C.	26, 29	Monaco, L.	27
Krucker, S.	33	Moore, R.L.	22, 24, 25, 28, 30, 33
LaFontaine, F.	32, 33	Motakef, S.	23
Lai, B.	24, 34	Nall, M.E.	21, 28, 32
Lapenta, W.M.	23, 29, 33	Nelson, T.R., Jr.	25
Lee, C.P.	24, 31	Newman, T.S.	21
Lee, G.W.	23	Nishikawa, K.I.	28, 29, 30
Lee, J.K.	21, 32	O'Dell, S.L.	21, 25, 27, 34
Lee, M.	30	Oglesby, R.	33
Lehner, D.	27	Ostgaard, N.	25
Lehoczy, S.L.	23, 24, 33	Ostrogorsky, A.G.	32
Lembege, B.	28	Pakhomov, A.V.	32, 33
Leshner, C.E.	23	Palosz, B.	24, 26
Leslie, F.W.	27	Palosz, W.	23, 24, 26
Li, C.	23, 24, 33	Parker, J.H.	25
Liemohn, M.W.	28, 29	Patel, M.S.	27
Lin, B.	33	Patel, S.K.	25
Lin, J.	32, 33	Pendleton, G.N.	21
Lin, Z.-W.	23	Phillips, T.A.	29
Lin, Zi-Wei	26	Pivovarov, M.J.	26
Lu, H.-L.	26	Pojoga, S.	33
Lugaz, N.	31	Potter, R.	27
Luvall, J.C.	21	Preece, R.D.	29, 30
Luz, P.	30	Pusey, M.L.	25, 27, 29, 31
MacDowell, R.	31	Raghothamachar, B.	23
MacLeod, T.C.	25	Ramachandran, N.	23, 27, 33
Majeed, T.	25, 31	Ramsey, B.D.	21, 24, 26, 34
Makal, A.	27	Rashkovich, L.N.	32
Malone, C.C.	30	Rathz, T.J.	23
Marin, C.	32	Ray, C.S.	23
Marks, F.	33	Rehak, P.	34
Marshall, S.	33	Richardson, G.A.	29, 30
Martin, A.	30	Richmond, R.C.	21, 28, 31
Marzwell, N.I.	27, 32	Rickman, D.L.	21
Matson, D.M.	23	Roads, J.	33
May, G.	26	Robertson, F.R.	26, 33
Meegan, C.A.	26	Robinson, R.K.	26
Mende, S.B.	31	Rogers, J.R.	23, 28, 31
Metzger, A.E.	25	Sanders, G.B.	27
Meyer, P.J.	33	Saturno, W.	30
Miller, T.Y.	30	Schlagheck, R.A.	27, 29
Minamitani, E.F.	25, 31	Schweizer, M.	21

Scripa, R.N.	24, 33	Volz, M.P.	21, 23, 31, 32
Semmes, E.B.	27, 32	Voronov, O.A.	33
Sen, S.	21, 24, 30	Waite, J.H., Jr.	22, 25, 31, 34
Sever, T.L.	30	Walker, J.S.	21
Shorey, A.	26	Wargo, M.J.	27, 32
Sibille, L.	28, 32	Weber, H.	24
Singh, N.	23	Weisskopf, M.C.	21, 22, 25, 34
Smith, D.D.	22, 25, 27, 30	Wilson, C.A.	21
Smith, G.A.	30	Wilson-Hodge, C.A.	22
Smith, W.S.	28	Wohlman, R.	33
Smithers, M.	27	Xiong-Skiba, P.	24
Snell, E.H.	23, 26, 29	Yan, X.Y.	28
Sol, H.	29, 30	Young, R.B.	30
Spann, J.F., Jr.	22, 23, 31	Yurchyshyn, V.	24
Spearing, S.F.	27		
Speegle, C.O.	21		
Spivey, R.	30		
Stagg, E.	29		
Stahl, H.P.	21, 23, 24, 25, 28, 30		
Stefanescu, D.M.	21, 24		
Stel'makh, S.	24, 26		
Sterling, A.C.	22, 24, 25, 28, 31, 34		
Su, C.-H.	23, 24, 33		
Suematsu, Y.	21		
Suess, S.T.	24, 28, 31		
Suggs, R.J.	21, 28, 29, 33		
Swartz, D.A.	34		
Swingle, M.R.	32		
Szofran, F.R.	21, 23		
Szoke, J.	23		
Taylor, C.	26		
Thomas, B.R.	24, 34		
Thompson, M.	32		
Thornton, G.	34		
Tompa, G.S.	33		
Tricard, M.	26		
Tucker, D.S.	27		
Uddin, W.	33		
van der Woerd, M.J.	23, 24		
Vekilov, P.G.	32		
Veress, V.	33		
Vettaikorumakankauv, A.K.	27		
Vogel, S.	24		

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operation and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503				
1. AGENCY USE ONLY (Leave Blank)		2. REPORT DATE December 2005		3. REPORT TYPE AND DATES COVERED Technical Memorandum
4. TITLE AND SUBTITLE Science and Technology Directorate Publications and Presentations, January 1–December 31, 2004			5. FUNDING NUMBERS	
6. AUTHORS Compiled by F.G. Summers				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) George C. Marshall Space Flight Center Marshall Space Flight Center, AL 35812			8. PERFORMING ORGANIZATION REPORT NUMBER M-1155	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) National Aeronautics and Space Administration Washington, DC 20546-0001			10. SPONSORING/MONITORING AGENCY REPORT NUMBER NASA/TM—2005-214219	
11. SUPPLEMENTARY NOTES Prepared by Science and Technology Directorate				
12a. DISTRIBUTION/AVAILABILITY STATEMENT Unclassified-Unlimited Subject Category 88 Availability: NASA CASI 301-621-0390			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words) This Technical Memorandum (TM) lists the significant publications and presentations of the Science and Technology Directorate during the period January 1–December 31, 2004. Entries in the main part of the document are categorized according to NASA Reports (arranged by report number), Open Literature, and Presentations (arranged alphabetically by title). Most of the articles listed under Open Literature have appeared in refereed professional journals, books, monographs, or conference proceedings. Although many published abstracts are eventually expanded into full papers for publication in scientific and technical journals, they are often sufficiently comprehensive to include the significant results of the research reported. Therefore, published abstracts are listed separately in a subsection under Open Literature. Questions or requests for additional information about the entries in this report should be directed to Dr. A.F. Whitaker (SD01; 544-2481) or to one of the authors.				
14. SUBJECT TERMS astrophysics, biophysics, microgravity, and Earth sciences			15. NUMBER OF PAGES 52	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT Unlimited	

National Aeronautics and
Space Administration
IS04

George C. Marshall Space Flight Center

Marshall Space Flight Center, Alabama
35812
